SUPERMOTO
SUPERCROSS
SUPERMOTO-X

CPI

SERVICE MANUAL

SMSX

Service Manual

PREFACE

This workshop manual contains information about common service, repair, and maintenance works for all systems of the model CPI SMSX.

The manual is subdivided in chapters, in which the vehicle systems in question are explained. Every component or subsystem is treated in a section of its own. Some chapters contain a maintenance section with work processes which apply to several components or subsystems in the chapter.

Every section usually contains a description of the proceedings, installation, dismantling, assembly and examination of components. There are tables of special tools and specifications in chapters of their own.
Where required, the use of the special tools is indicated in the individual chapter.

Every chapter starts with a chapter contents list, where all treated parts, work and checking operations are listed with detail of the page numbers.

The chapter page numbering is built up the following way:

Example: Fl 3 = group of Fl, page 3

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GENERAL INFORMATION

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GENERAL INFORMATION

CAUTION

Suitable maintenance and repair proceedings are indispensable both for the safe and operationally reliable operation of a motor vehicle and for the personal safety of the mechanic.
Many proceedings, techniques, tooling and components are known for the various maintenance works that are required for a vehicle, and the knowledge of motor vehicle technicians differs likewise. Neither can this shop manual anticipate all eventualities arising from this fact, nor is it intended to point out all potential risks. Therefore, it is absolutely indispensable to make sure that neither personal safety nor the vehicle's roadworthiness is impaired when deviating from the instructions given here.

The following general warning instructions always have to be observed when maintaining the vehicle:

- Turn off the ignition, unless otherwise stipulated.
- Keep away from moving or rotating components when the engine is running.
- Avoid touching of hot components (exhaust manifold, exhaust pipe, catalytic converter, muffler) in order not to get burnt!
- If for maintenance works the engine must run, then pay attention to **sufficient ventilation** in closed rooms. Use suitable suctioning units to derive engine exhaust gases! Engine exhaust gases contain carbon monoxide, which can lead to unconsciousness and to death when in higher concentration.
- Batteries contain sulfuric acid (electrolyte). Avoid any contact with skin, eyes and muscous membranes, since that acid causes severe injuries! Operators have to wear suitable protective clothing and safety goggles according to the stipulations made by the respective professional organizations.
- In the case of contact with sulfuric acid, the concerned areas have to be cleaned with much water. In the case of contact with eyes, wash them with a lot of water and go to an ophthamologist immediately!
- **Always keep sulfuric acid out of reach of children!**
- Fuel is extremely highly inflammable and the gasses are bad for health! During maintenance, closed rooms must always be sufficiently ventilated. Open flames, smoking or flying sparks are strictly to be avoided!
- Used oils, greases and other used lubricants are bad for health when at a longer / daily skin contact, and they can cause skin cancer. Avoid any unnecessary skin contact and clean wetted skin areas with water and soap after every contact.
- Brake fluid is extremely bad for health. The same safety instructions apply to works with brake fluid as in the case of sulfuric acid.
- Used acids, greases, oils, brake fluid as well as fuels are hazardous waste. They must be disposed separatedly and carefully and in accordance with the valid local regulations. This also applies to contaminated rags and components (e.g. oil filters).

CAUTION

The usage of low-quality fuels and lubricants, which do not correspond to the CPI specifications, can lead to severe engine and gear failures. Always use high-grade fuels and lubricants, which correspond to the specifications in the specifications chapter of this manual.

WARNING AND SAFETY SYMBOLS

The following symbols indicate that the vehicle technician must pay extra attention when performing maintenance works.

Symbol	Description	Symbol	Description
	It is indispensable to follow this instruction. Severe injuries or even the loss of life may result in the case of non-observance.		Component parts may get damaged when this instruction is not oberseved.
			This symbol provides useful information on how to perform proper repair or service work.

VEHICLE IDENTIFICATION NUMBERS

The VEHICLE IDENTIFICATION NUMBER consists of 17 alphanumeric characters. It is stamped onto the right hand side of the front steering tube.

R F T S M 4 5 A 6 6 L 0 0 0 1 1 0

Serial number

Manufacturer
L = CPI
Year of manufacture
6 = 2006, 7 = 2007
Model year
6 = 2006
Version
B
Variant

Vehicle type
SM = SuperMoto
Manufacturer code
RFT = CPI MOTOR COMPANY

The ENGINE NUMBER is stamped on the lower right side behind the drive sprocket.

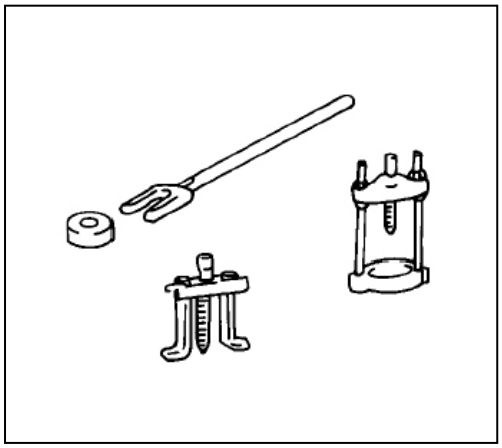
MAINTENANCE INSTRUCTIONS

PREPARING TOOLS AND MEASURING INSTRUMENTS

Before staring any maintenance works make sure that all necessary tools and measuring instruments are available.

SPECIAL TOOLS

Use special tools, if stipulated in the chapter.

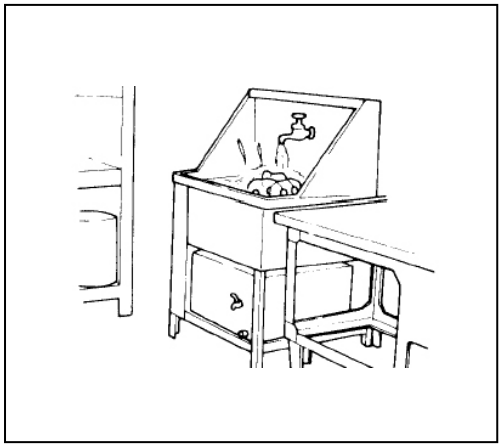


REMOVAL OF ENGINE PARTS

Before starting any mainrenance works try to track the fault cause. Decide whether the removal or disassembly of the part in question is necessary.

CLEANING OF REUSABLE PARTS

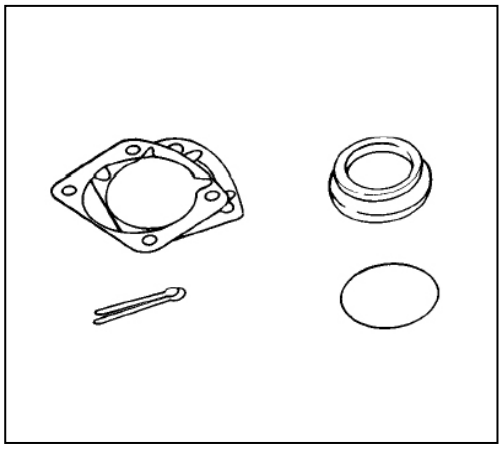
All reusable parts have to be cleaned carefully and thoroughly and in a suitable way.



SPARE PARTS

If parts have to be replaced, use original CPI spare parts only.

REASSEMBLY



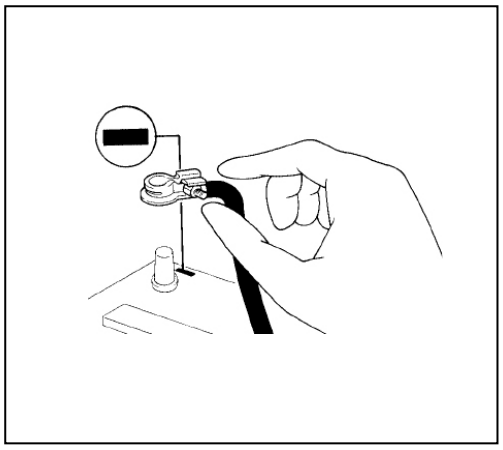
If reassembling engine parts, precisely obey the instructions regarding defaults of tightening torques and other settings. The following parts always have to be replaced prior to reassembly.

1. Oil retainers
2. Washers
3. O-rings
4. Lock washers
5. Split cotter pins
6. Plastic nuts

Depending on the mounting place the following should be carried out:

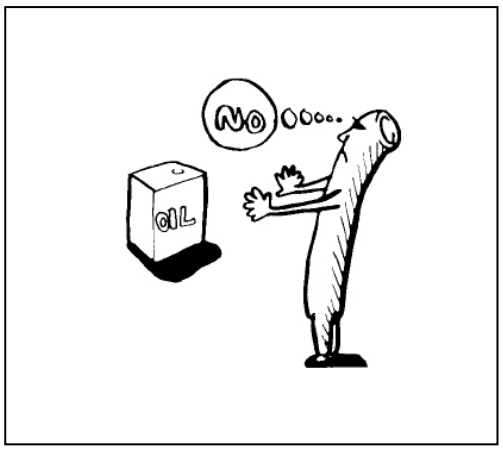
1. Applying sealant to washers.
2. Oiling of moveable parts.
3. Oil or lubricating grease must be applied to defined spots (e.g. oil retainers) prior to assembling.

ELECTRICAL EQUIPMENT



1. Always disconnect the cable from the battery's (-) negative terminal first.
2. Never pull the cable when disconnecting connections. Always remove plugs by pulling the plug.
3. Snap-in connections are properly made when you can hear a click noise.
4. Sensors and relays have to be handled carefully. Do not drop them and avoid contact with other parts.

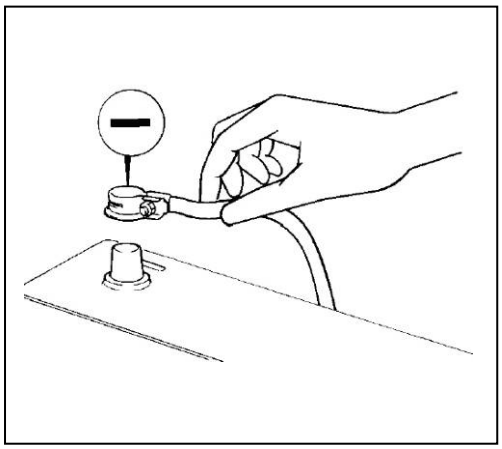
RUBBER PARTS, RUBBER-SHEATED CABLES, AND RUBBER TUBES



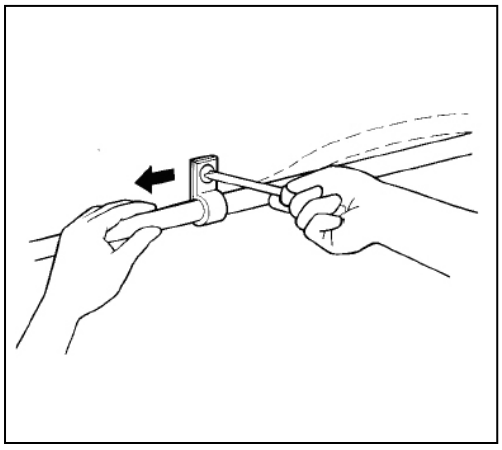
Pay attention not to wet rubber parts, rubber-sheated cables, and rubber rubber tubes with petrol or oil.

MAINTAINING THE ELECTRICAL SYSTEM

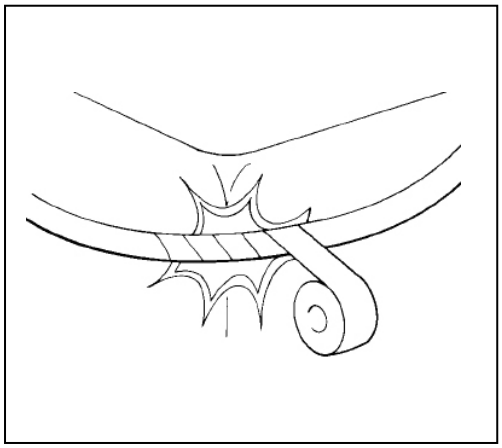
1. Prior to maintaining the electrical system, the ignition has to be switched off and the battery ground cable has to be disconnected.



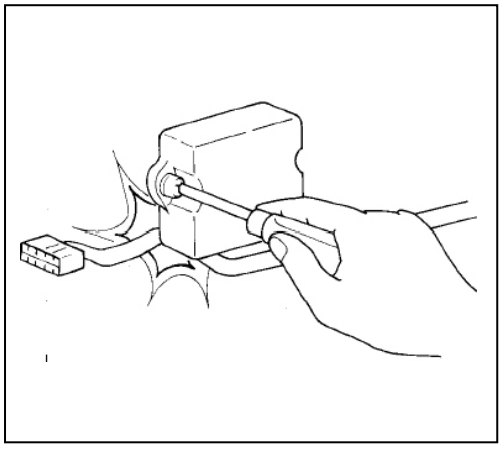
2. To avoid slack, wiring harnesses have to be fixed with cable clamps or cable fastening ribbons. However, allow a little play to all wiring harnesses, which are routed to the engine or other vibrating vehicle parts. This play must be in such a way that the wiring harnesses do not contact adjacent parts due to engine vibrations.



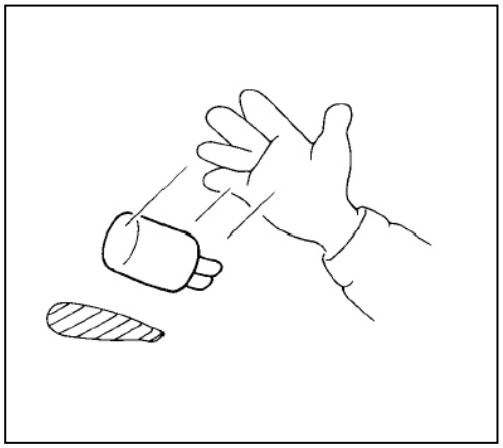
3. If any part of a wiring harness is routed along an edge or corner of a vehicle part, or if it has contact to that edge or corner, that section of the harness has to be wrapped round with tape or the like in order to protect it against damage.



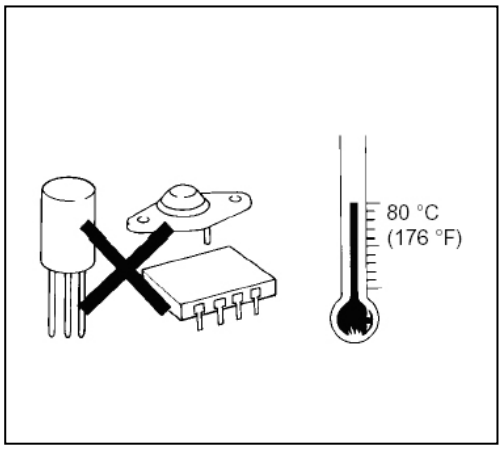
4. When mounting or reinstalling vehicle parts, pay attention not to pinch or damage any of the wiring harnesses.



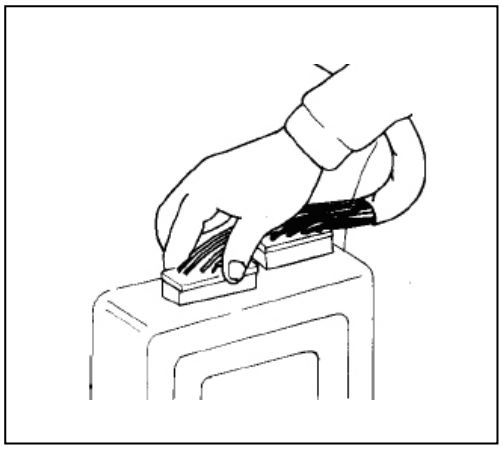
5. Do not drop relays, sensors, or other electric components and do not expose them to vibration.



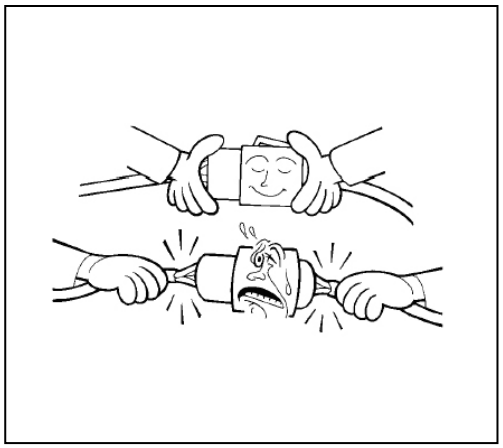
6. Electric component parts built in the microcomputer or relay are sensitive to heat and can easily get damaged. If for maintenace works the temperature must be risen above 80 °C, those electric component parts have to be removed prior to maintenance.



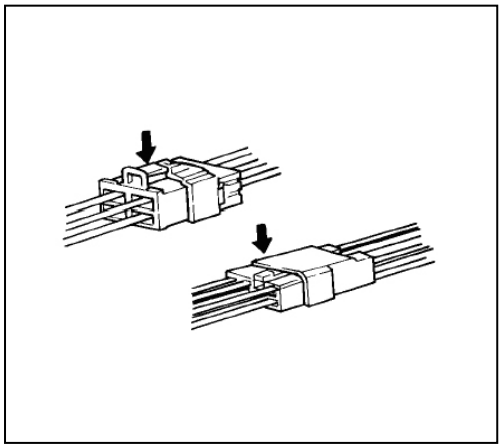
7. Loose coupling can cause malfunctions. Make sure that all plug-connections are adequately made.



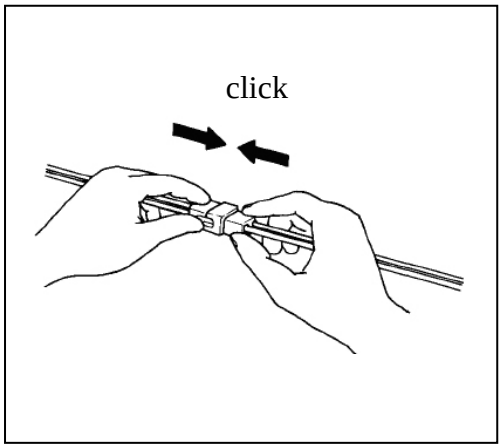
8. Always pull the connector and not the wiring harness when disconnecting any plug connections.



9. If snap-in connections have latching clips, those connections can be interrupted by pressing the clips down according to the directions specified in the adjacent drawing.

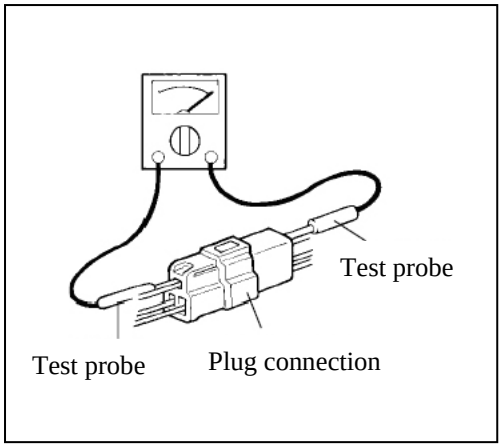


10. The latching clips are properly locked in place when you can hear a click noise.



11. When conducting continuity checks or voltage measurements with a circuit tester, the test probe must be inserted in the terminals at the wiring harness side. In the case of a shielded connection the probe must be inserted through the cable opening of the rubber cap until contact is made with the terminal. Pay attention not to damage the insulation and wires.

12. Take into account the electric load caused by additional equipment in order to avoid wiring overload.



NOTES

TECHNICAL DATA

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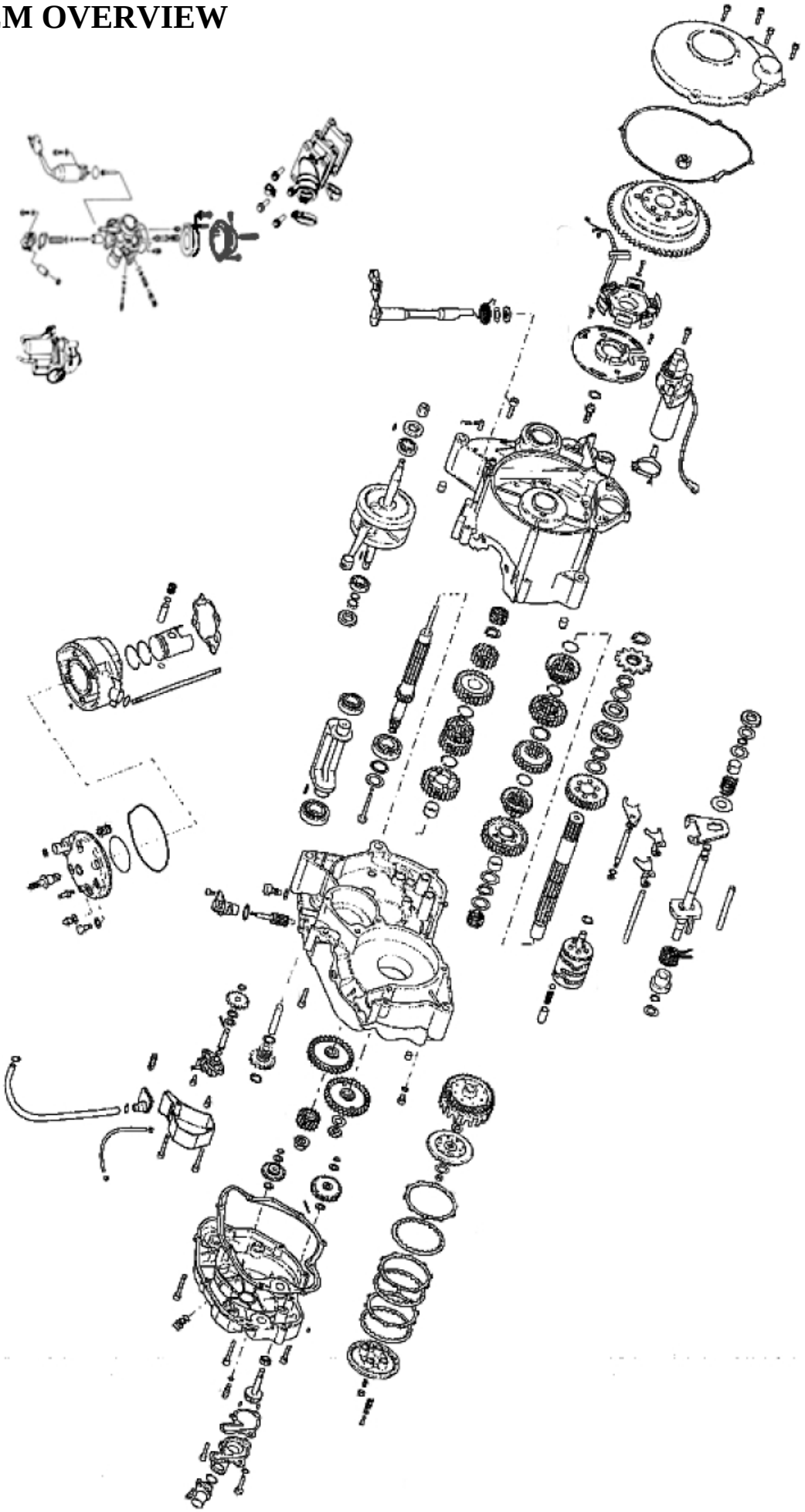
SYSTEM OVERVIEW



SPECIFICATIONS

	Description	Unit	Specifications
Masses And Dimensions	Length	mm	1955
	Width	mm	790
	Height	mm	1185
	Wheel base	mm	1338
	Seat height	mm	920
	Unladen weight	kg	92
	Weight in running order	kg	100
	Tech. permissible mass	kg	270
	Axle load, front	kg	100
	Axle load, rear	kg	190
Frame, Chassis, Brakes,	Frame	--	Split underslung steel tubing framework
	Front suspension	--	Hydr. telescopic fork
	Rear suspension	--	Swing arm with spring strut shock absorber
	Front suspension travel	mm	240
	Rear suspension travel	mm	30
	Front braking system	--	Disk brake (Ø 270 mm)
	Rear braking system	--	Disk brake (Ø 210 mm)
	Brake fluid (DOT 4)		Every 2 years
	Fresh oil	l	1 (2-stroke, fully synthetic)
	Fork oil	ml	315 per bar (SAE 15W)
	Transmission oil	ml	650 (ESSO ATF D 21611)
Wheels / Tires	Material of wheels		Aluminum
	Front rim size		J17 x 2,50
	Rear rim size		J17 x 3,50
	Front tire		110/80-17 57H
	Rear tire		130/70-17 62H
	Tires – pressure		
	front	bar	1,8
	rear	bar	2,0

Engine

Type		1 cylinder, two-stroke
Arrangement of cylinder		15° inclined to the front
Cooling system		Water
Lubrication		Fresh oil
Bore / Stroke	mm	40,0 / 39,0
Displacement	cm^3	49,0
Compression		11:1
Power rating (EC)	kW/min^{-1}	2,2 / 7000
Torque (EC)	Nm/min^{-1}	3,9 / 4000
Combustion pressure	bar	9,8 (at operating temperature)
Piston-to-wall clearance (max)	mm	0,047
Radial clearance of the piston ring (max)	mm	0,36
Axial clearance of the piston ring (max)	mm	0,13

Fuel System

Carburetor		Optional VM MIKUNI Ø 16 DELL'ORTO PHVA16
Fuel tank capacity	l	6,8
Fuel (unleaded)	ROZ	min. 91
Fuel consumption	l/100 km	_____

Transmission

Clutch type	Oil-immersed multiple plate clutch
Gearbox type	Constant-mesh gearbox

Gear ratio

R1	R2	R3	Rt
	3,00 (36/12)		51,51
	2,06 (33/16)		35,37
3,05	1,52 (29/19)	5,63	26,10
(61/20)	1,22 (27/22)	(62/11)	20,94
	1,04 (25/24)		17,85
	0,96 (24/25)		16,48

Gearshift: Drum switch, controlled by left pedal, sequence: (down) 1-Neutral-2-3-4-5-6 (up).

Electrical System	Charging voltage	V	13,5
	Charging current	A	0,9 – 1,2
	Fuse	A	7
	Low beam bulb	W	35 HS1
	High beam bulb	W	35 HS1
	Parking light bulb	W	5
	License light		LED
	Stop / Tail light		LED
	Turn signal light		LED
	Nominal power	W	85
	Generator		
	Ignition type		CDI
	Pulse generator	Ω	100 – 150
	(red/white)		
		V/min^{-1}	2,7 / 1800
	Excitation winding	Ω	750 - 850
	(black/red)	V/min^{-1}	80 / 800
	Charging coil (white)	Ω	0,5 - 0,9
	Light coil (yellow/red)	Ω	0,5-0,9
	Primary coil	Ω	0,3 - 0,5
	Secondary coil or spark	k Ω	3,0
	plug connector	k Ω	8 - 10
	Spark plug		BR8ES
	Spark plug gap	mm	0,4 – 0,6
	Spark energy	mm	min. 0,7
	Ignition point	$° / min^{-1}$	17 / 1800

TIGHTENING TORQUES

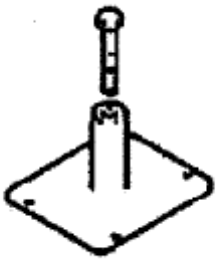
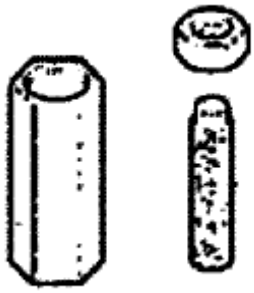
Description	**∅ (mm)**	**Torque (Nm)**
Front axle nut	12	60
Rear axle nut	16	120
Front fork bridge clamping screws	8	20
Brake caliper bolts	8	25
Handlebar mounting bolts	34	---
Suspension strut lower fastening bolt	6	12
Engine hanger bolts	8	20
Transmission housing fastening screws	---	---
Engine case	6	12
Cylinder head	7	14 - 16
Flywheel	12	45
Clutch drum	---	---
Clutch	---	---
Transmission oil draining plug	8	10
Kick starter	6	12
Manifold	6	12
Muffler	6 / 8	12 / 20
Bolts / nuts without defined stipulations	6	12
	8	20
	10	40
	12	60
Spark plug	14	15

NOTES

SPECIAL TOOLS

DESCRIPTION AND USAGE ST-2

DESCRIPTION AND USAGE

	Description	Order number
	Flywheel puller	ABC-111797
	Crankshaft puller	CPI-D06-82015-25-00
	Crankshaft mounting tool	CPI-D06-82015-26-00
	Shifter shaft seal driver	CPI-D06-82015-28-00

	Driver for clutch release lever shaft seal	CPI-D06-82015-29-00
	Driver for water pump seal	CPI-D06-82015-30-00
	Crankshaft seal driver	CPI-D06-82015-31-00

NOTES

CARBURETOR

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DISASSEMBLY	FL 7
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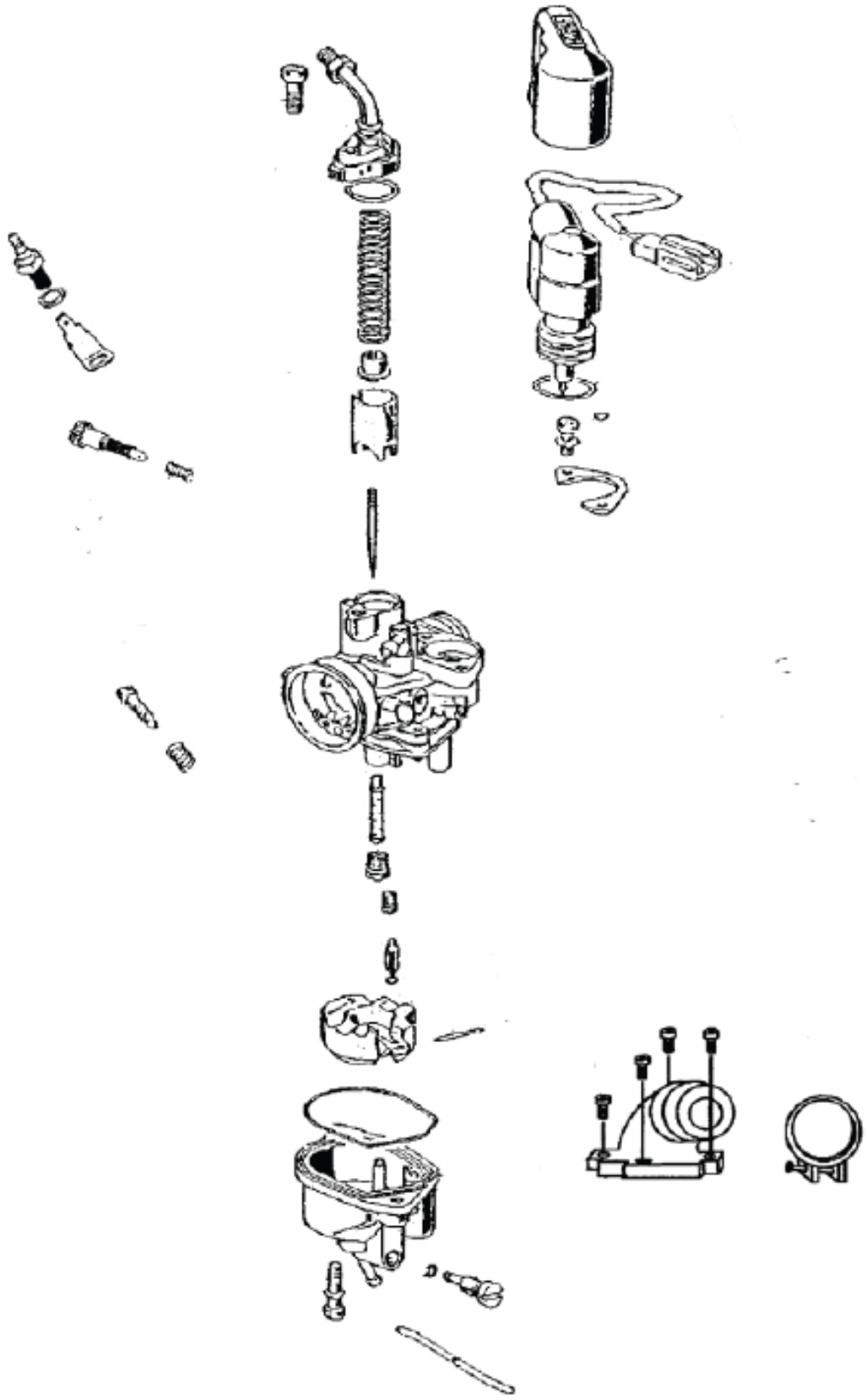
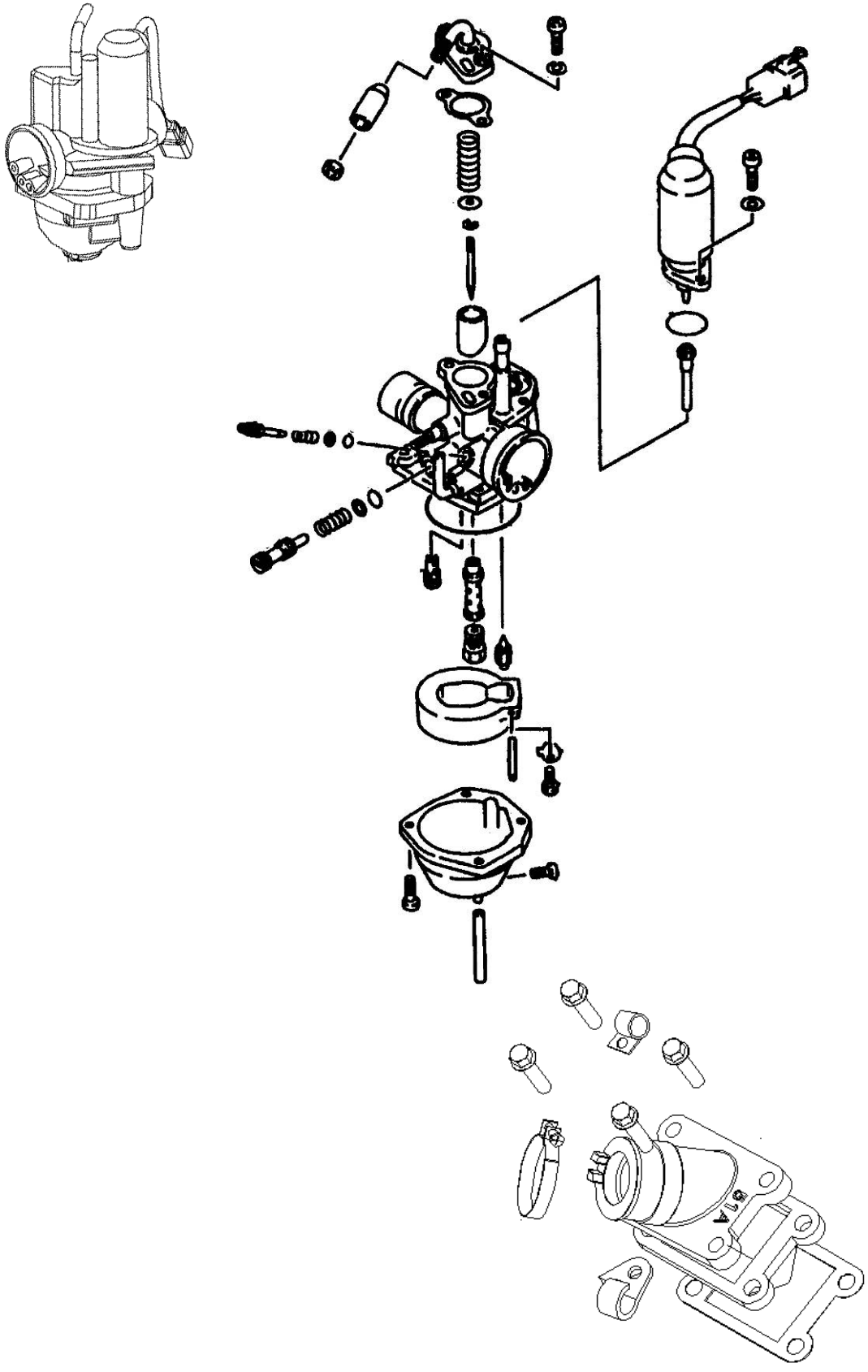
REED-TYPE INLET-VALVE	FL 10

SYSTEM OVERVIEW

Dell'Orto



Mikuni



MAINTENANCE NOTICE

1. Before maintaining the carburetor, the engine, the fuel supply, and the ignition system have to be in a faultless state. The carburetor can only properly adjusted and faults in the carburetor system can be detected when there are no mechanical defects in the engine or defectas in the fuel supply or in the ignition system.
2. The engine must have warmed up and reached its operating temperature if the adjustments are to be made when the engine is running.
3. The air cleaner has to be installed in the vehicle and the filter element must be clean.
4. Observe that control cables are not kinked or heavily bent in order to ensure a proper carburetor adjustment.
5. If for maintenance works the engine must run, pay attention to sufficient ventilation in closed rooms. Use suitable suctioning units to derive engine exhaust gases. Engine exhaust gases contain carbon monoxide and can lead to the unconsciousness and to death.
6. Petrol is bad for health and can cause skin cancer. Any unnecessary skin contact has to be avoided.
7. Used fuels are hazardous waste. They have to be disposed carefully and in line with the local regulations.
8. Avoid flying sparks, open flames or smoking when working with fuel.
9. If necessary, mark the position of pipings and their supports prior to dismantling. This makes the later reinstallation easier.
10. Always use a new seal when installing the float chamber cover to the carburetor body.
11. The carburetor float chamber is provided with a fuel drain screw. If the vehicle is not moved for more than one month, the fuel has to be drained completely. Otherwise, there will be danger of clogging of bores and jets, which in turn can lead to bad start behaviors or to malfunctions.
12. Dried fuel can cause clogging of needle jets bores and channels in the float chamber or the carburetor body. They must be blown through with compressed air. Do not use needles or the like to clean the bores since this will damage or enlarge them.

SPECIFICATIONS

	Description	Specification	
Fuel tank	Fuel capacity l	6,8	
Type of fuel	Unleaded fuel	min. 91 (ROZ)	
Carburetor	Mikuni [1] or Dell'Orto [2]	1)	2)
		Ø 16	Ø 16
	Main jet	# 72,5	# 62
	Idle jet	# 17,5	# 36
	Jet needle position (notch from above)	3.	2.
	Carburetor float chamber level (mm)	11 ± 1	13 ± 0,5
	Idle speed screw	3/4	1 ¼
	Idle speed (min-1)	1800 ± 100	1800 ± 100

TOOLS

- Standard tools

FAULT TRACKING

B**ad start behavior, stall**,
- Wrong idle speed adjustment
- Mixture too rich, too lean
- Air cleaner clogged or soiled
- Choke system defective
- Carburetor float chamber level wrongly adjusted

A/F mixture too lean
- Carburetor jets / bores clogged
- Fuel tank ventilation (fuel filler cap) clogged
- Clogged fuel supply (filter clogged, supply line squeezed)
- Carburetor float needle valve hangs, does not open
- Carburetor float chamber level too low
- Engine vacuums parasitic air
- Air cleaner body leaky

A/F mixture too rich
- Choke valve clogged
- Nozzles clogged
- Carburetor float needle valve hangs, does not open (due to soiling)
- Carburetor float chamber level too high
- Air cleaner clogged

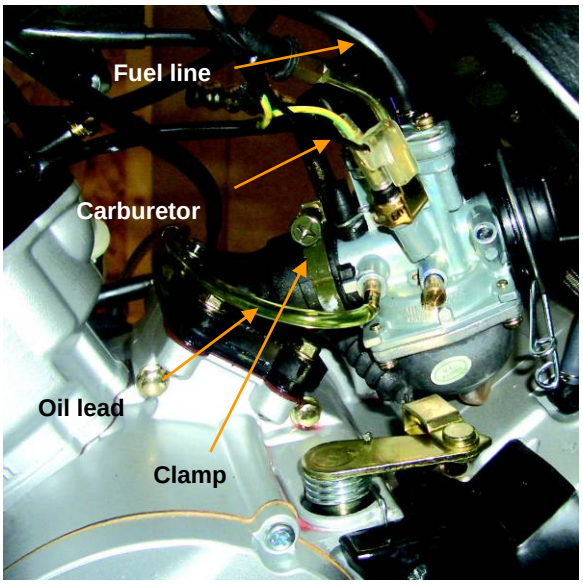
CARBURETOR REMOVAL

Place a suitable container under the drain pipe of the float chamber and open the drain screw.

Remove the hose clamp of the intake manifold. Remove the connection to the suction hose. Remove the fuel line, the carburetor heating, and the oil lead.

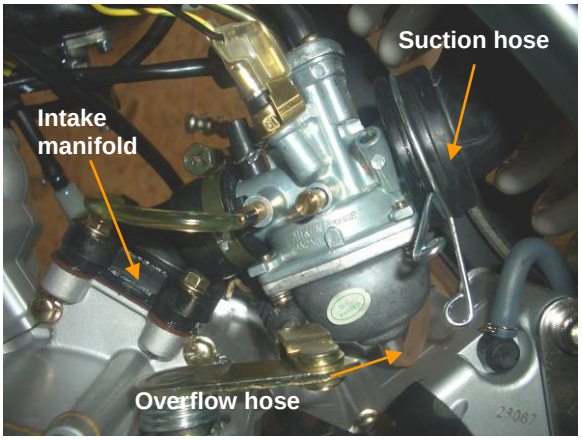
Disconnect the choke cable plug from the wiring harness.

The drained fuel must be properly disposed.



Remove the carburetor (from the suction hose) with the back end first.

Release the screws in the the carburetor cover and remove the carburetor (the cover remains mounted to the vehicle).

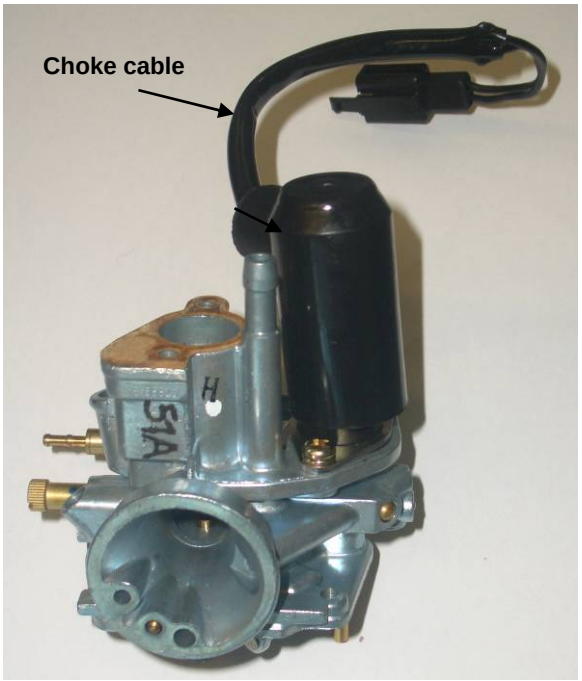


DISASSEMBLY

Release the fastening screws of the choke cable support bracket and remove the choke cable. Release the fastening screws of the float chamber cover and remove the float chamber cover. Clean any deposits or cloggings in the the float chamber cover and bores.

Screw out the idle speed screw and the mixture control screw. Make sure that all sealing rings and washers are removed as well. If they remain in the bores of the carburetor body, they might get lost during the cleaning with compressed air.

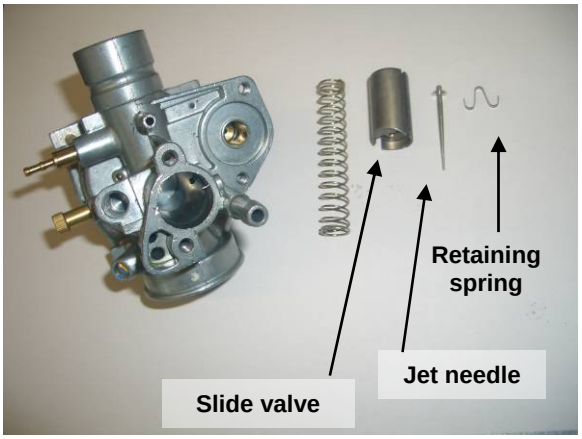
The A/F mixture screw must be carefully screwed in, otherwise the seat might get damaged.



SLIDE VALVE

Release the screws in the carburetor cover.
Press the spring into the cover and remove the securing plastic stopper (Dell'Orto), or retaining spring respectively (Mikuni), from the slide valve. Then unhook the control cable from the slide valve.
Remove the jet needle with the retaining clip.

Check the spring, slide valve, and plastic stopper / retaining spring for wear and the jet needle for deformation. Check the needle jet for clogging. Remove deposits and clogging by means of compressed air.



MIKUNI

POSITION OF THE RETAINING CLIP

Per default the retaining clip is mounted in the second (Dell'Orto) or the third (Mikuni) notch of the jet needle, counted from above.

The position of the retaining clip has influence on the A/F mixture when the engine is running at middle and upper load. A deviation from the above setting is usually not required, except for extreme operating conditions. Before changing the clip position on the jet needle, all other adjustments and possible failure sources have to be checked.

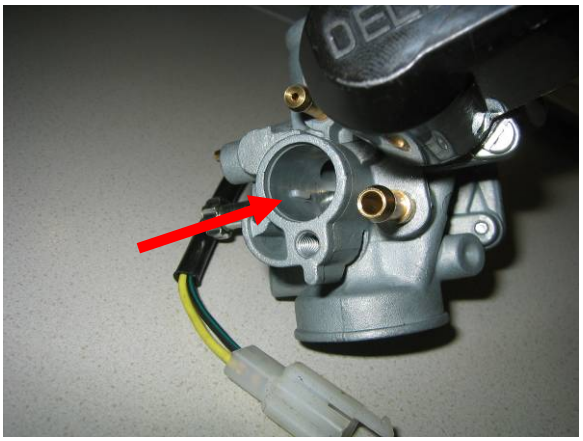
DELL'ORTO

SLIDE VALVE ASSEMBLY

Put the needle jet together with the retaining clip in the slide valve.
Put the plastic stopper and the spring over the control cable and hook the cable in the slide valve.

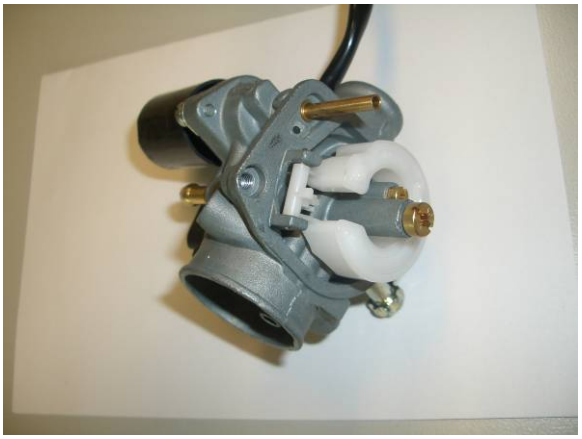
Align the guide slot of the slide valve with the guide in the carburetor body (comp. photo).
Place the cover onto the carburetor and fasten the screws. Ensure a sufficient free play of the throttle control cable by adjusting the setting screw.

The thread must not be attached crookedly.


DELL'ORTO

FLOAT CHAMBER LEVEL

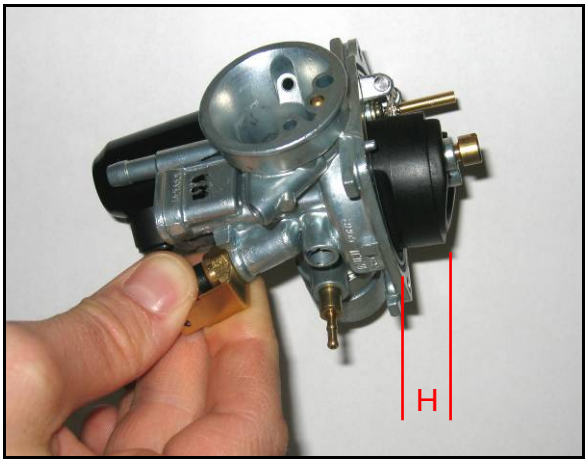
It is not possible to carry out the following corrections with a Dell'Orto carburetor as its float is entirely made of plastic. In case of any defects in this part, the float shall be replaced.



Dell'Orto

Level adjustment (Mikuni)

Measure the distance between the reference edge of the carburetor float and the carburetor body (H) with an alignment gauge.
For this purpose, hold the carburetor body in such a position that the float is free and does not exert any pressure on the needle valve.



Mikuni

The float must not face vertically up, since then its weight exerts pressure on the needle valve and a correct adjustment is not possible.

Float standard level (H): 10 - 12 mm

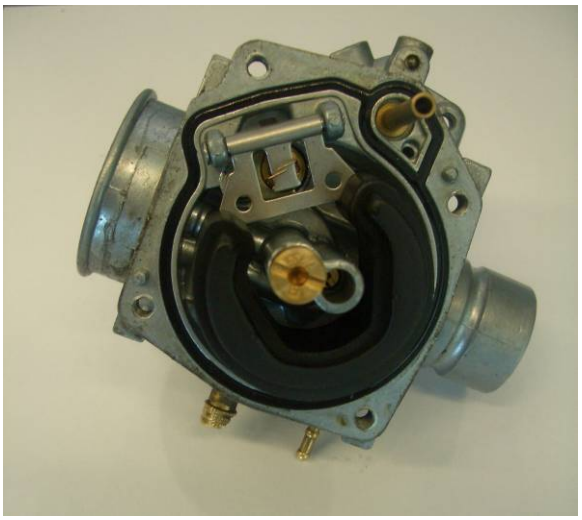
If the measured value deviates from the default value, the float chamber level must be adjusted by bending the stop lug of the float into the desired direction.

Note that only the position of the stop lug is to be changed. Neither the holder plate nor the position of the float hinge pin must be changed.

Slightly lift the float with your finger. There must be sufficient clearance between the stop lug and the needle valve below.

Adjust the clearance with a suitable tool into the proper direction.

Use a new sealing ring prior to mounting the float chamber cover.



Mount the float chamber cover to the carburetor body.
Fasten the choke cable and put in the throttle control cable.
Mount the carburetor to the intake manifold and to the suction hose of the engine air cleaner box.

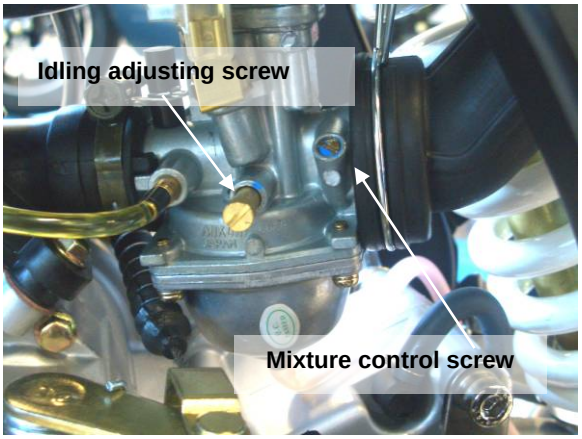
Check the oil and the fuel line, the overflow tube and the heating cable for damage and aging.

Connect all lines to the carburetor.
Adjust the throttle control cable.
Adjust the free play of the throttle control cable.

MIXTURE CONTROL SCREW

Carefully turn the screw clockwise to the stop and then release it by 1-1.5 turns.

Pay attention not to damage the seat.



For the proper adjustment of the idle speed the engine must have reached its operating temperature.

Adjust the idle speed to 1800 min^{-1} via the idle adjusting screw.

Slightly turn the mixture control screw clockwise or counterclockwise until the engine speed declines.Then set the screw to the middle setting of both positions.

Re-check the idle speed.

Turn the throttle grip and check whether the correct idle speed is adjusted by itself.

If not, repeat the steps before.

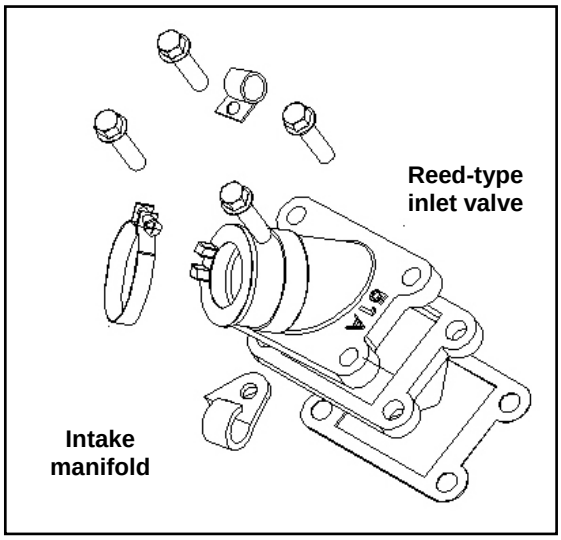
REED-TYPE INLET VALVE

Remove the carburetor from the intake manifold by releasing the hose clamp.

Release the four screws and the clamp for the clutch cable. Remove the intake manifold. Check the intake manifold for crackings and fissures.

Any ageing cracks in the intake manifold can be very harmful to the engine as foreign air can be suctioned and will cause leaning.

Remove the reed-type inlet valve and check the reeds for tightness.



Also check the inlet valve for damage and replace it if necessary.

Install the inlet valve and the intake manifold in reverse order.

Check the firm fit of the intake manifold which connects the carburetor and the engine and make sure it is air-tight. Ensure that the clamp is securely tigntened as well.

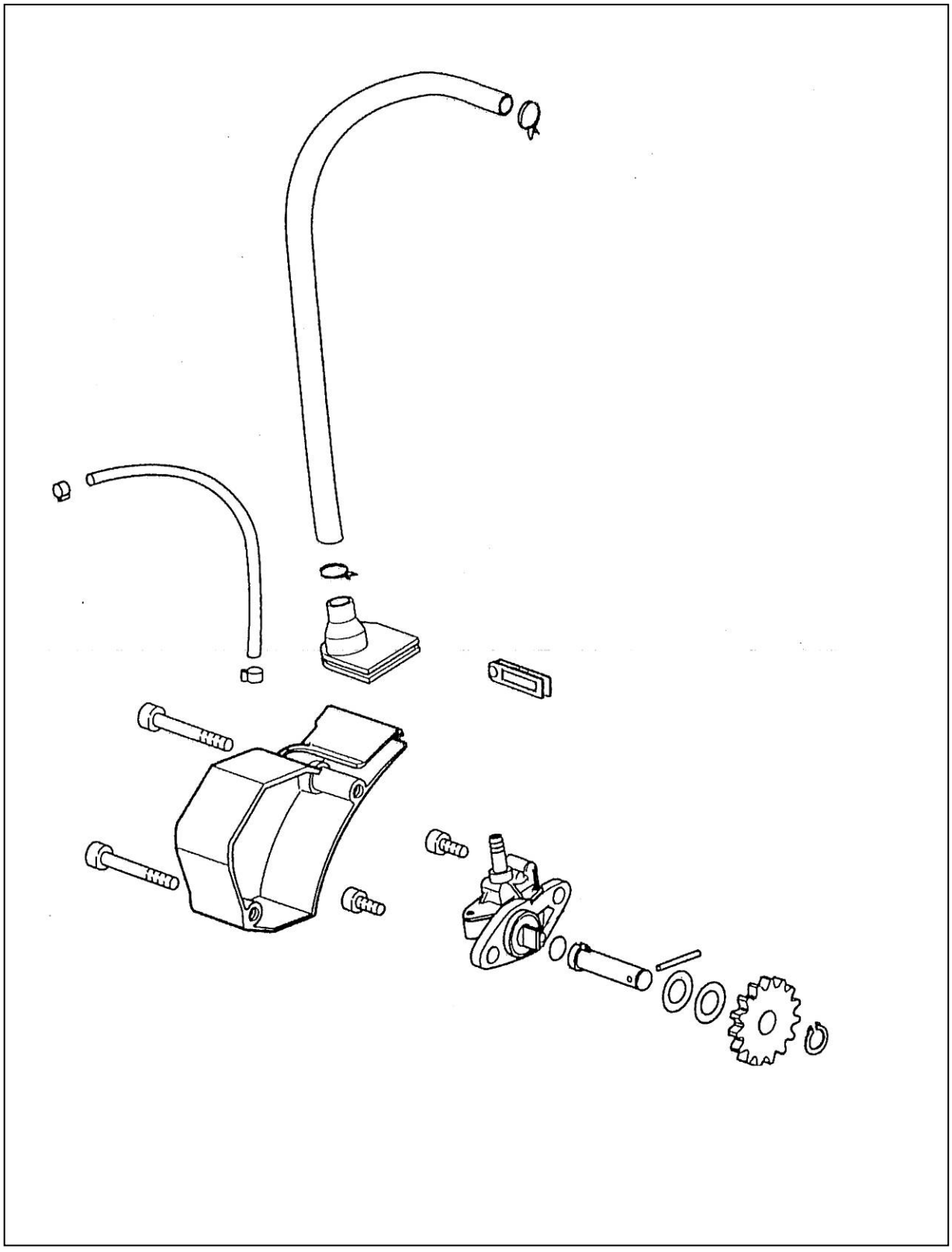
After the installation of the carburetor all supply lines must be connected and the fuel cock must be opened.

NOTES

2-STROKE - OIL PUMP

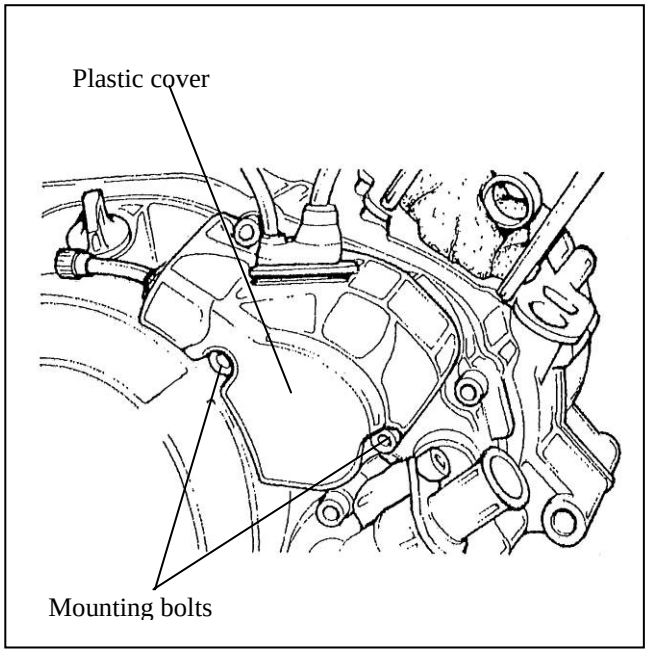
SYSTEM OVERVIEW	LB-2
REMOVAL	LB-3
INSPECTION	LB-4
INSTALLATION	LB-4
BLEEDING	LB-4

SYSTEM OVERVIEW



OIL PUMP REMOVAL

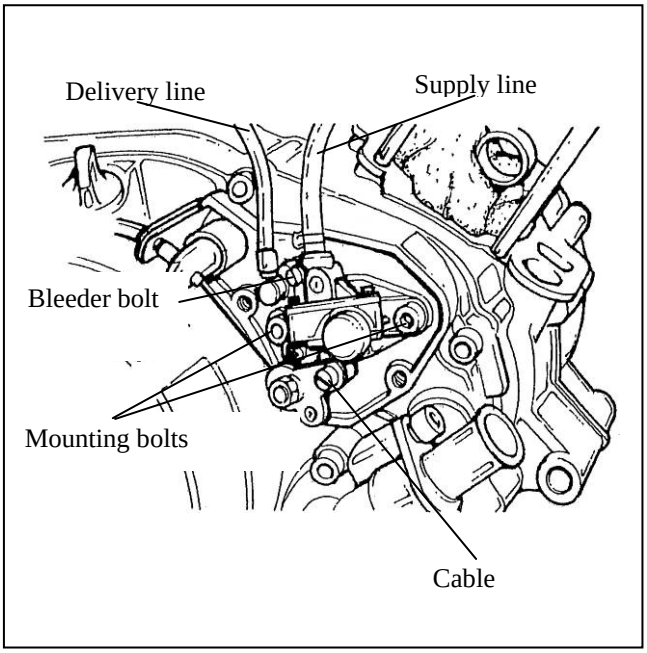
Release the mounting bolts of the plastic cover and remove the cover.



After removing the supply line from the oil reservoir and the delivery line, which leads to the carburetor, both lines must be plugged with suitable plugs so that no oil can flow out.

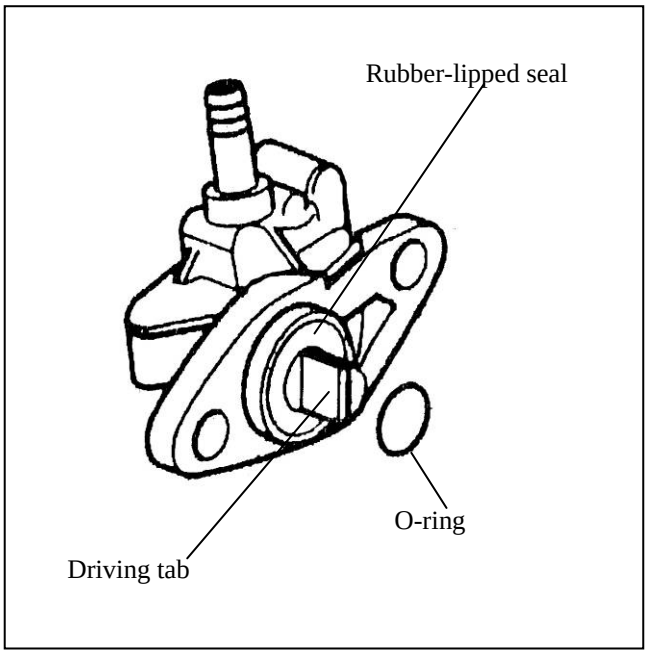
Unhook the control cable from the pump and loosen the two fastening screws.

Remove the oil pump.



INSPECTION

Check the two-stroke oil pump for damage and leakage. Check the driving tab for wear.



INSTALLATION

The O-ring seal has to be replaced prior to reinstalling the pump.

The pump body and the delivery line which leads to the carburetor must be bleeded subsequent to the reinstallation.

During bleeding, the engine should be run with the corrrect fuel/oil mixture ratio in order to ensure that it is sufficiently lubricated.

Bleeding

Connect the supply and the delivery lines.

Open the bleeder bolt and wait until oil runs out without formation of bubbles.

Put the cable in the pump and adjust it as per marking. The minimum marking must be coherently oriented when the twist grip is closed, and the maximum marking must be coherently oriented when grip is fully opened.

Remove the delivery line at the carburetor side and have the engine run until oil runs out without bubbling.

Connect the delivery line and check the system for leakage.

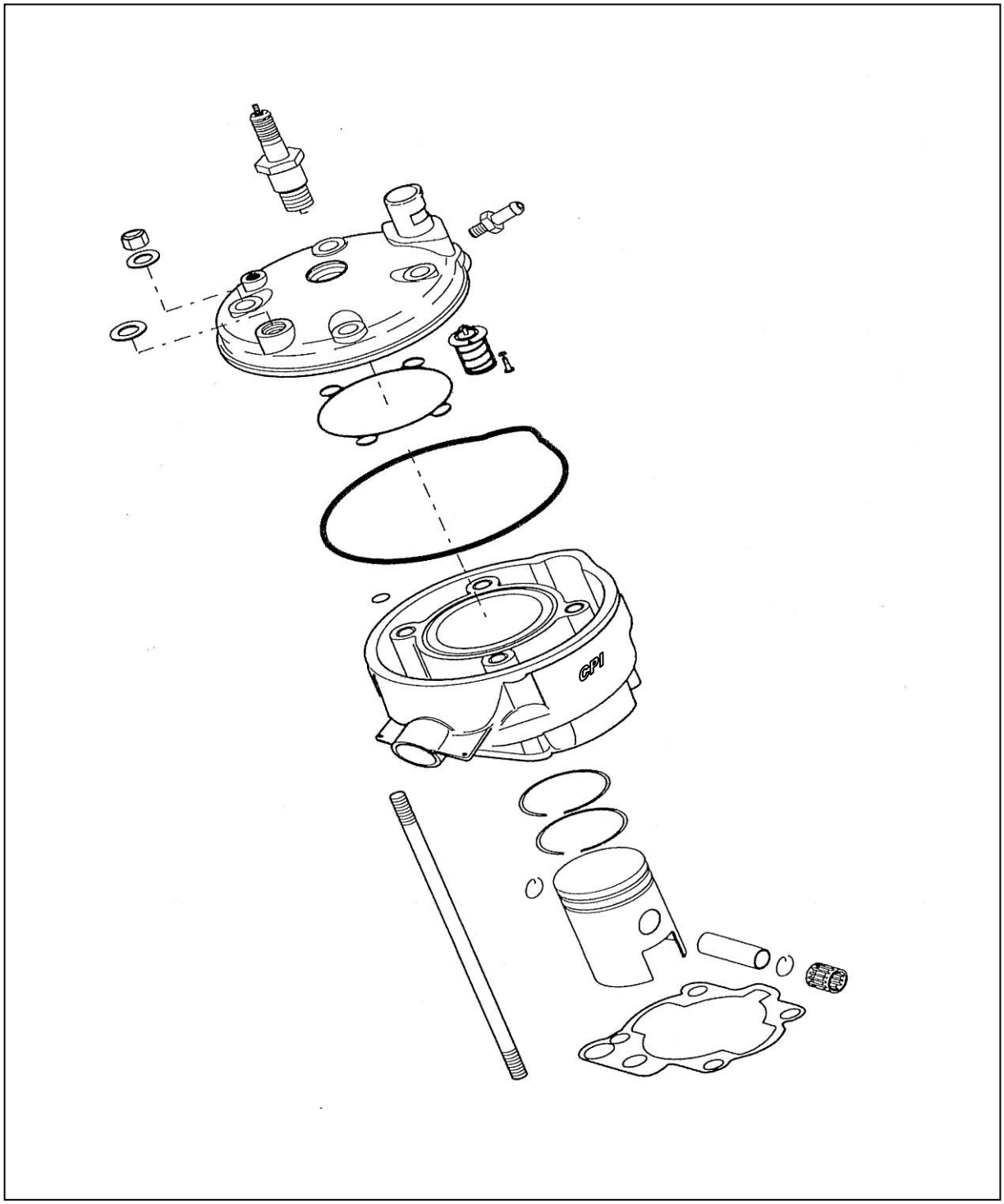
Remove oil residue from engine and attached components.

NOTES

PISTON AND CYLINDER

SYSTEM OVERBIEW	PC-2
CYLINDER HEAD	PC-3
THERMOSTAT	PC-3
THERMOSWITCH	PC-4
CYLINDER	PC-4
PISTON	PC-5
ASSEMBLY	PC-7

SYSTEM OVERVIEW



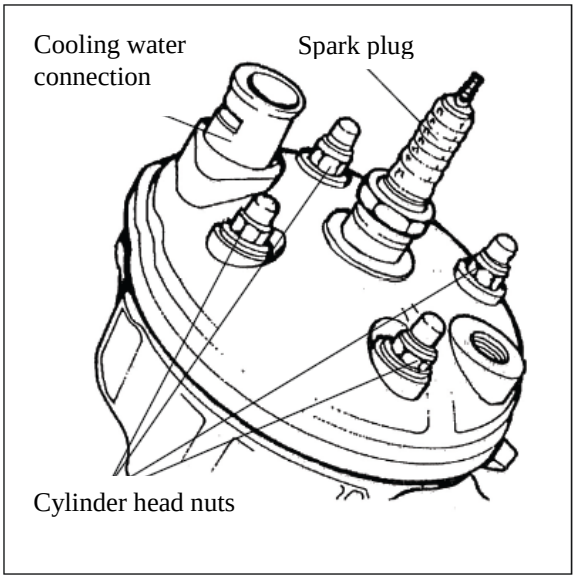
CYLINDER HEAD

Prior to removing the engine the coolant has to be drained. For this pupose loosen the screw of the water pump.

All connecting parts, like cables, hoses, spark plug etc. must be removed before.

The cooling liquid has to be collected in a suitable vessel. Check if the coolant can be reused and filter it if necessary. Polluted cooling liquid must not be reused.

Loosen the securing nuts and remove the cylinder head and the gasket.



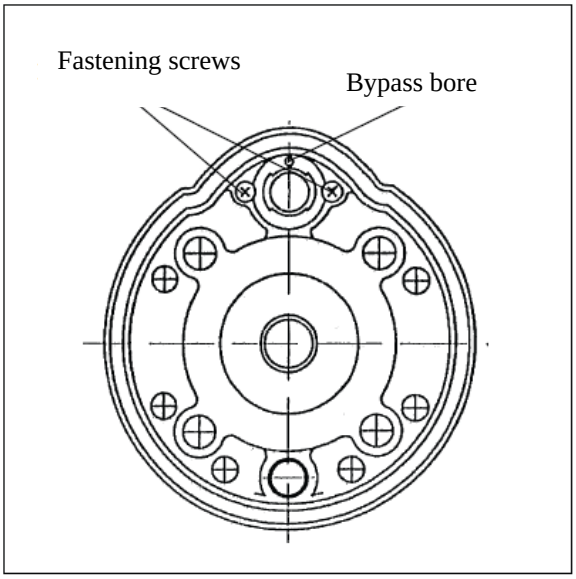
Check the cylinder head for damage and fissures.

Use a new gasket for reassembling. The cylinder head nuts have to be tightened crosswise.

Tightening torque: 14 – 16 Nm

THERMOSTAT

Loosen the two fastening screws take out the thermostat. Check the mechanical state of the thermostat.



The gasket surfaces have to be checked for damage and soiling prior to re-installing.

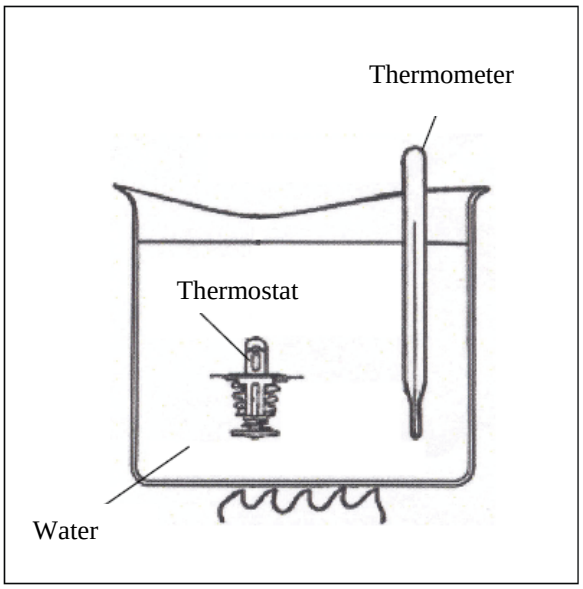
During installation, the bypass bore of the thermostat has to be oriented to the outside.

Put the thermostat in a vessel with water and warm the water to the opening temperature of the thermostat.

When reaching the nominal temperature the thermostat must be opened completely.

After cooling down under the nominal temperature the thermostat must close again.

Opening temperature: 65° C
Nominal temperature: 85° C

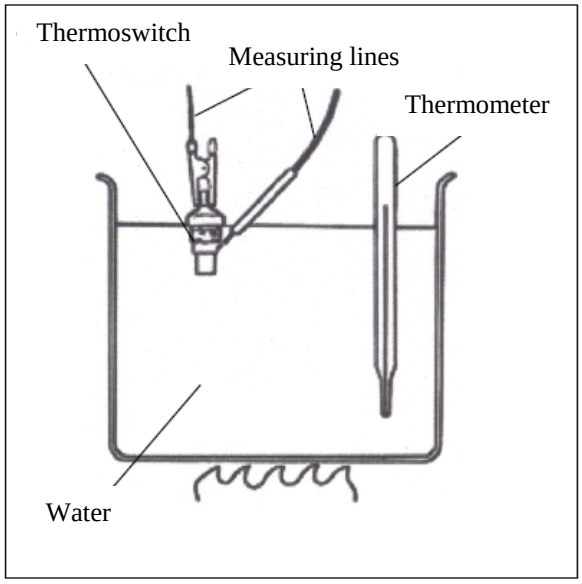


THERMOSWITCH

Immerse the thermoswitch into a vessel with water so that its thread is completely covered with water.

Heat up the water to the respective nominal temperature and measure the resistance.

90 °C – 100 °C: 0,7 Ω ± 0,3 Ω
18 °C – 22 °C: > 10 MΩ

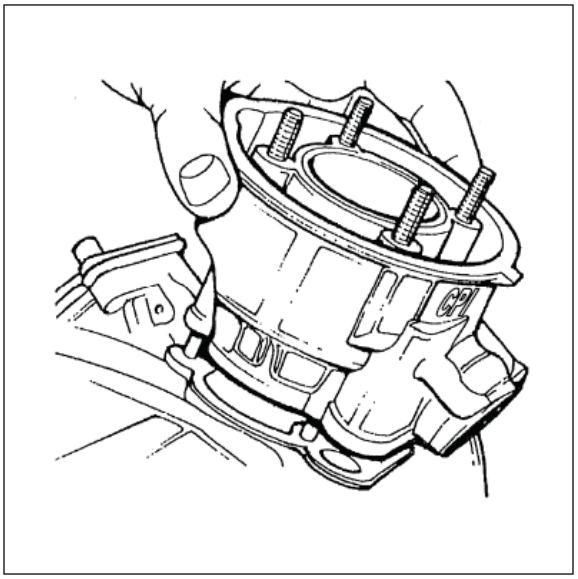


CYLINDER

Adjust the piston to the bottom dead center before removing the cylinder.

Carefully remove the cylinder and the base gasket.

Fill the opening of the engine with a rag in order to avoid dirt or foreign material from entering the crankcase.

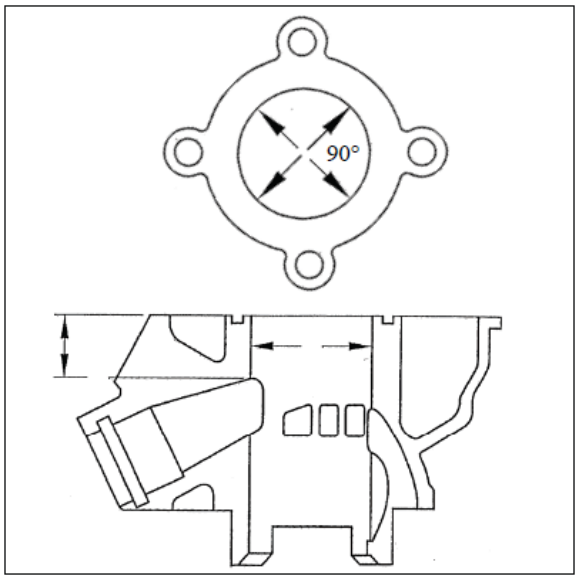


The inside wall of the cylinder must not show any rougher wear or scores.

The ovality of the tread must be below the given limit value.

Take measurings at several areas of the tread, each staggered by 90°.

Limit value: 0.03 mm

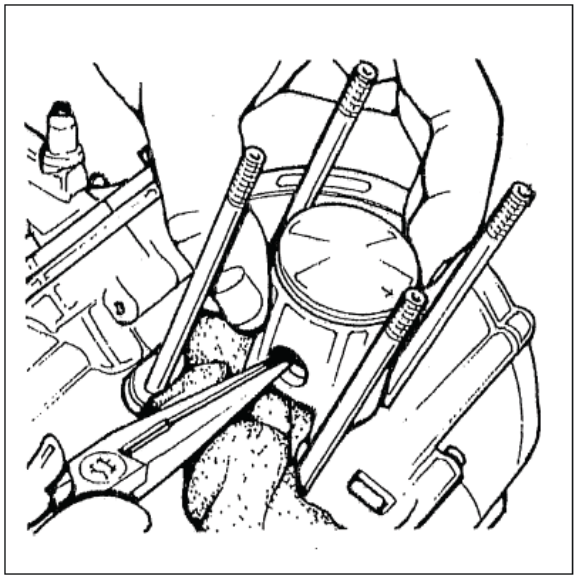


PISTON

Keep the piston on position and remove the circlip of the piston pin with a suitable tool by holding it on one side.

Then press out the piston pin towards that side. Remove the piston and remove the needle bearing from the piston boss.

Fill the opening of the engine with a rag to prevent that the cicrclips fall into the engine.



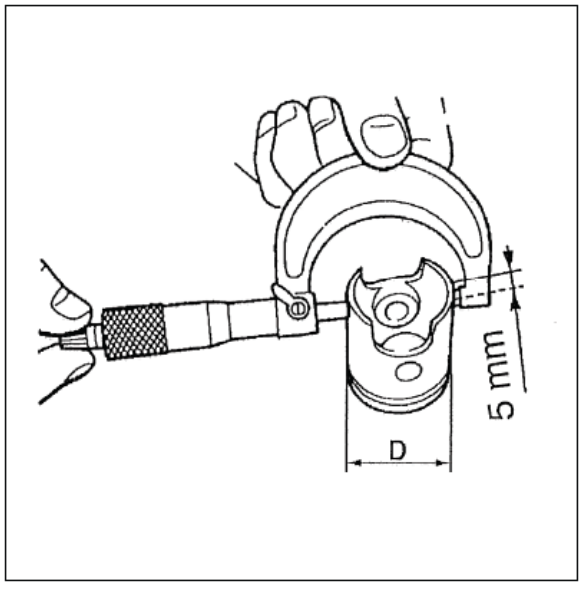
The piston must not have any rougher signs of scores or wear.

Carefully clean the piston top and the ring grooves from any combustion residues. Pay attention not to damage the ring or the grooves. Check the piston pin and the needle bearing for wear.

Measure the outside diameter of the piston with a micrometer calliper at a distance of approx. 5 mm, measured from the edge of the piston. The maximum clearance between piston and cylinder must not exceed the defined limit value.

In case of deviations from the limit value both the piston and cylinder have to be replaced.

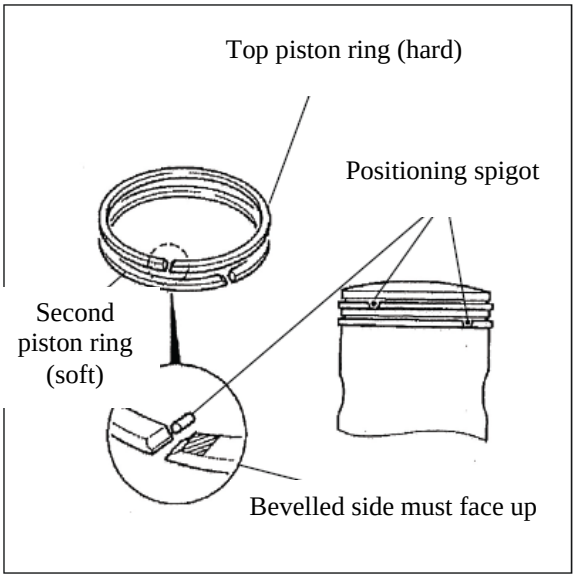
Limit value: 0.1 mm



When mounting new piston rings pay attention to whether the bevelled side of the piston rings faces upwards.

Slightly move the piston rings to the left and to the right while watching the position spigots.

Lubricate the piston rings and the ring grooves with a small amount of two-stroke oil.

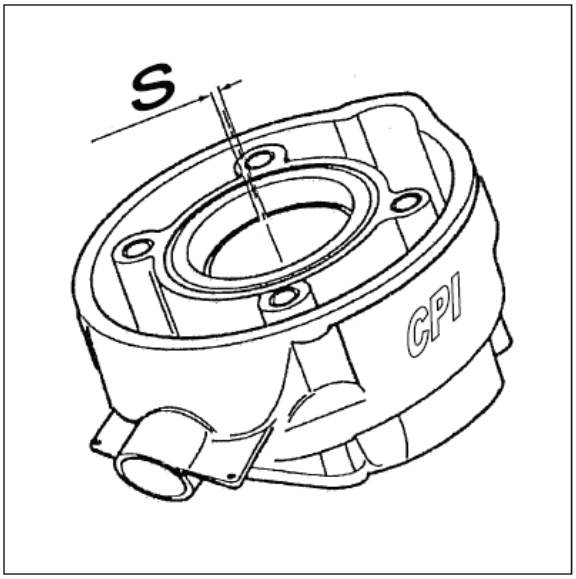


If piston rings shall be reused, then they have to be checked for wear before they are mounted.

The piston rings have to be inserted from below into the slightly oiled cylinder and have to be aligned at a right angle to the tread.

Measure the ring gap of the piston with a feeler gauge to ensure that the values are within the specified tolerance.

Ring gap S (mm)	0,36 mm



Put the oiled needle bearing into the connecting rod eye.

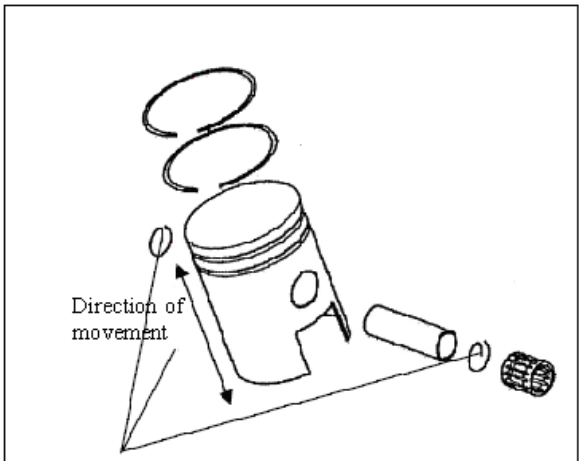
Place the piston with its arrow orienting towards the opening.

If the arrow is no longer dectectable, then the piston ring gaps must always be opposite to the outlet.

Slightly press the piston pin into the piston until it meets the circlip. Then install the second circlip.

Prior to placing the piston, the tread of the cylinder and the piston have to be slightly lubricated with two-stroke oil.

The circlips have to be installed in such a way that their fastening hooks are aligned with the direction of movement of the piston.



The fastening hooks of the circlips must be aligned with direction of movement.

ASSEMBLY

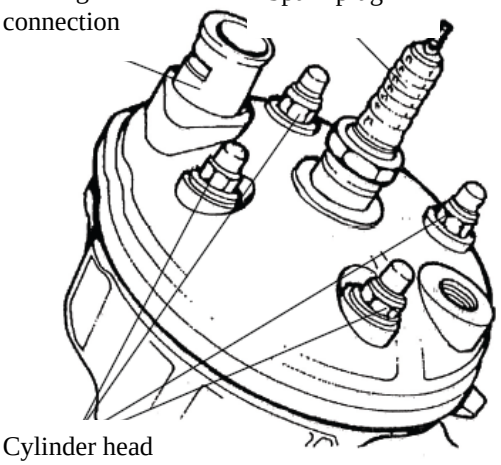
Mount the following parts as per specified order:

- a new cylinder base gasket,
- the cylinder,
- a new O-ring to the cylinder,
- and new O- rings for the stud bolts.
- a new O ring to the clean cylinder head
- and install the cylinder head.

Tighten the cylinder head nuts crosswise.

Tightening torque: 14 - 16 Nm

Attach cables, hoses, spark plug etc.

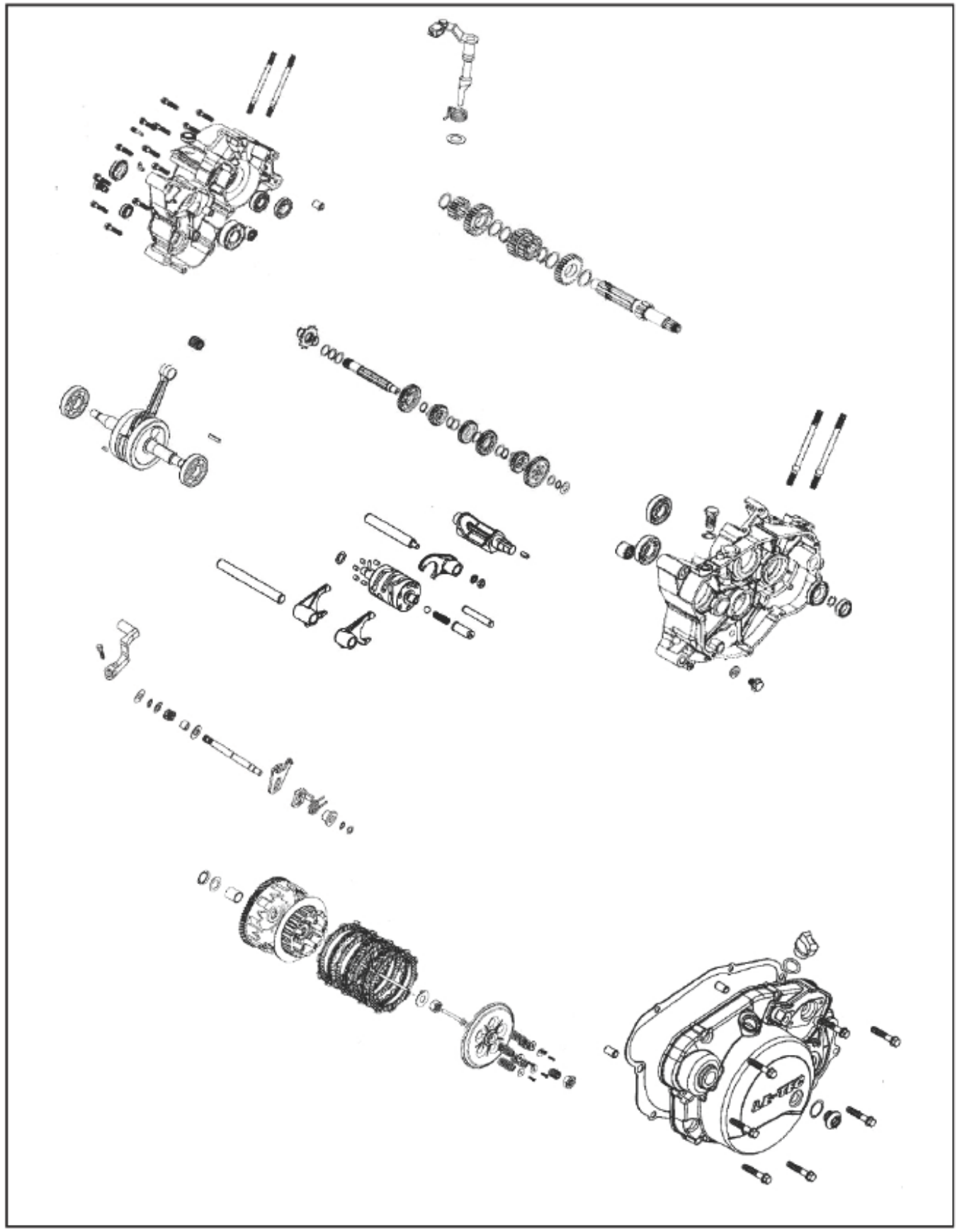


NOTES

CLUTCH GEARBOX

SYSTEM OVERVIEW	CG-2
DISMANTLING	CG-3
ASSEMBLY	CG-12

SYSTEM OVERVIEW



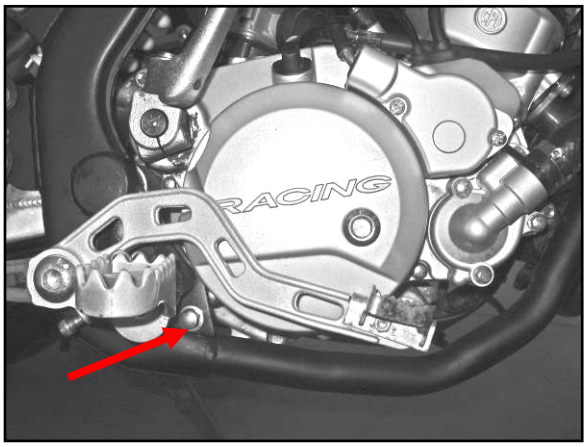
DISMANTLING

WATER PUMP REMOVAL

Drain the coolant by opening the drain plug and collect the coolant in a suitable vessel.

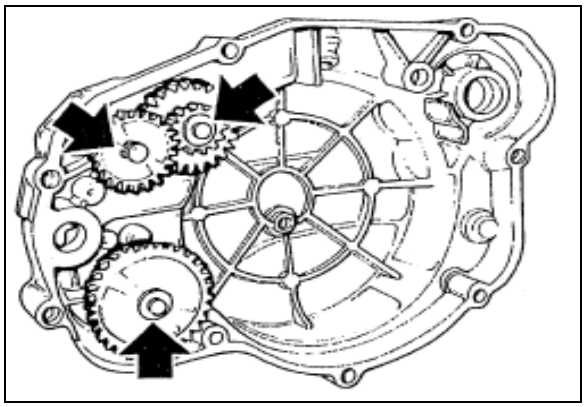
Loosen the hose clamp screw, remove the hose clamp and the sleeve. Loosen the fastening screws and remove the pump casing.
Pay attention to also remove the two reference pins below the casing.

CLUTCH COVER REMOVAL



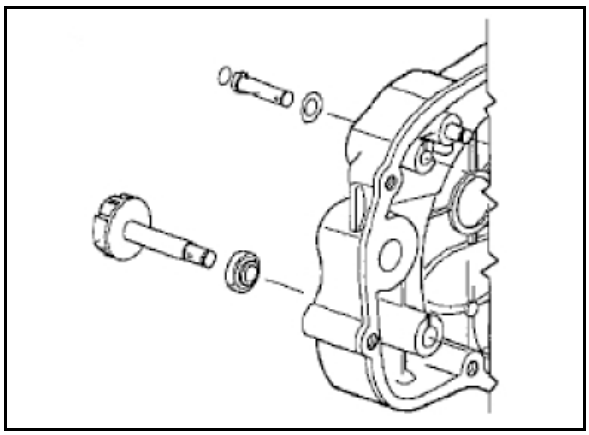
Remove the bleeder bolt together with the washer. Drain the oil.

Loosen the fastening screws and remove the clutch cover together with the gasket.



Remove the circlips of the three gears from the clutch cover and take out the gears.

Note the position of the different plain washers to make the later assembling easier.



Remove the impeller of the water pump as well as the corresponding oil seal.

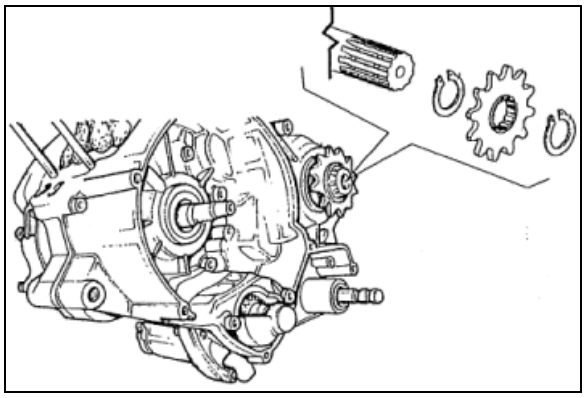
Remove the O-ring and the driving tab of the two-stroke oil pump together with the sealing ring.

PINION GEAR REMOVAL

Loosen and remove the circlip of the chain pinion gear by means of circlip pliers.

Remove the chain pinion gear.

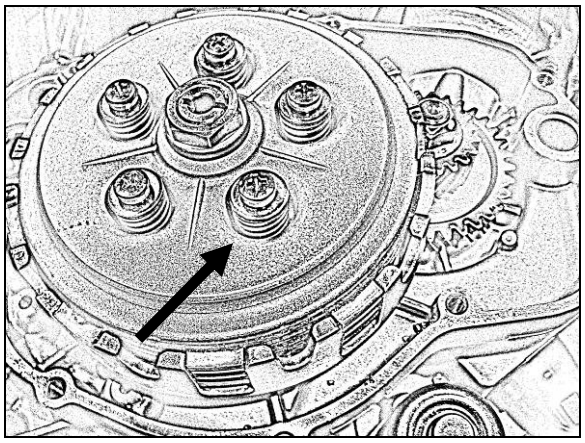
Pull out the pinion gear and remove the circlip under the pinion gear.



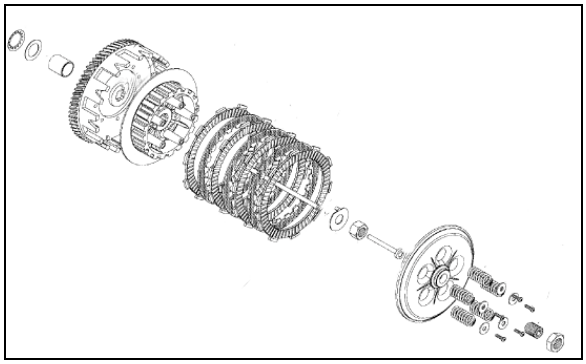
REMOVAL OF THE CLUTCH

The proper functioning of the wet clutch depends to a great extent on the choice of the right engine oil and of the oil level. In case of a slipping clutch the quality and the fill quantity of the lubricant shall be checked prior to dismantling the engine.

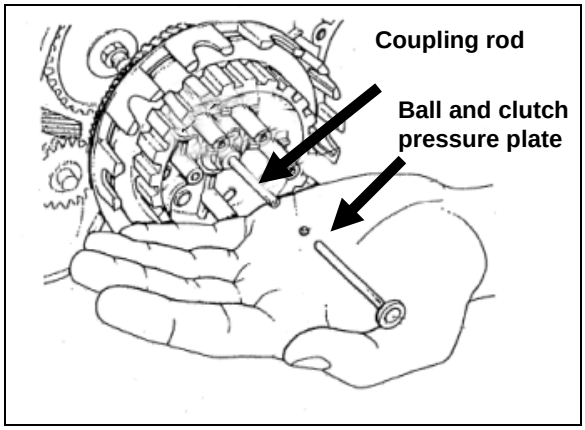
Compress the clutch spring fastening screws and remove the spring plate and the set of clutch disks.



When disassembling the different components of the clutch, it is important to note their respective position in order to ensure that they can be properly re-assembled.

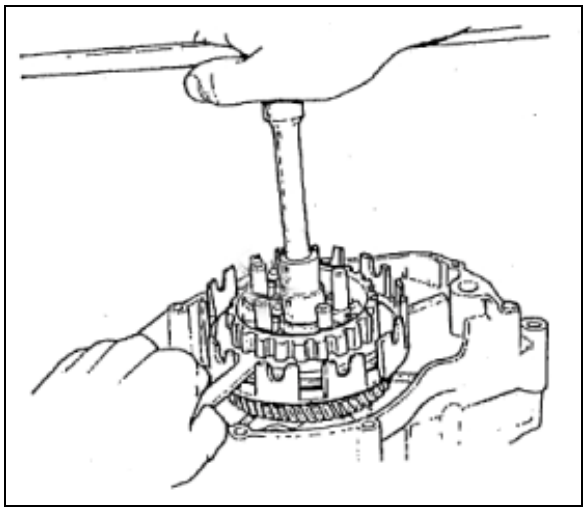


Remove the clutch thrust plate, the ball, and the coupling rod from the center bore of the main shifter shaft.



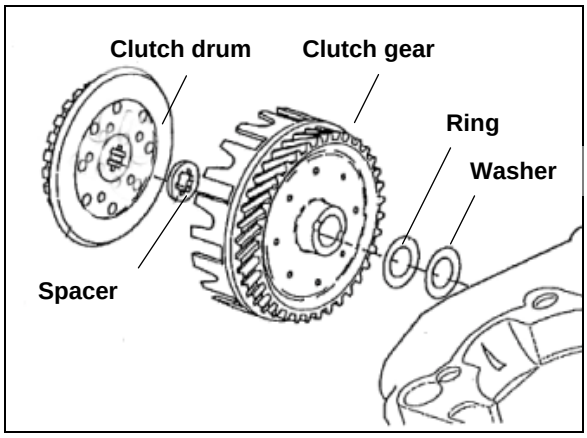
Straighten the petal of the lock washer under the securing nut of the clutch drum.

Fix the clutch drum with a clutch wrench and unscrew the securing nut completely with a 17 mm spanner.



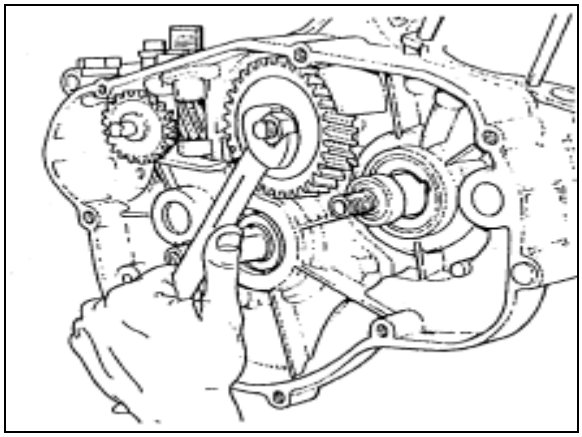
Remove the parts in the following order:

- clutch drum,
- spacer,
- clutch gear,
- the scraper ring (observe its mounting direction)
- and the coned washer.

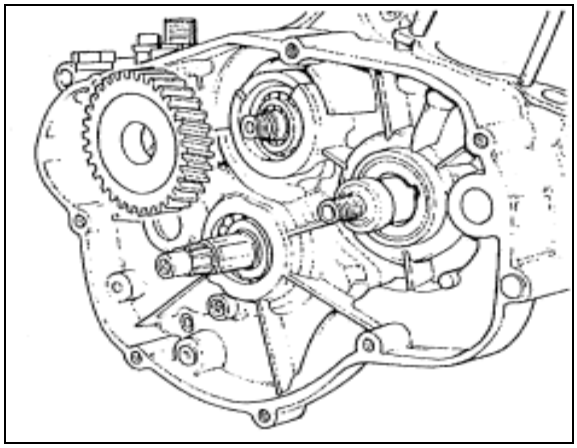


COUNTERSHAFT REMOVAL

Fix the flywheel and loosen the fastening nut of the countershaft.

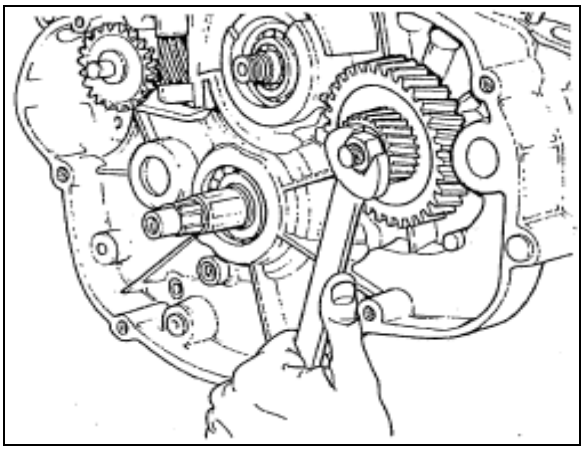


Remove the gear and the key from the countershaft.



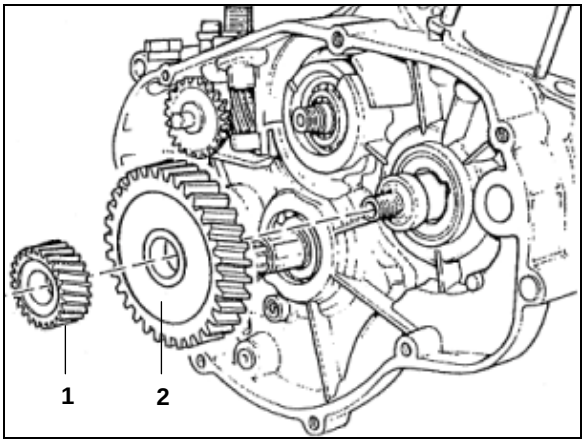
DRIVE PINION REMOVAL

Block the flywheel and loosen the nut with a 19mm spanner.



Remove the parts in the following order:

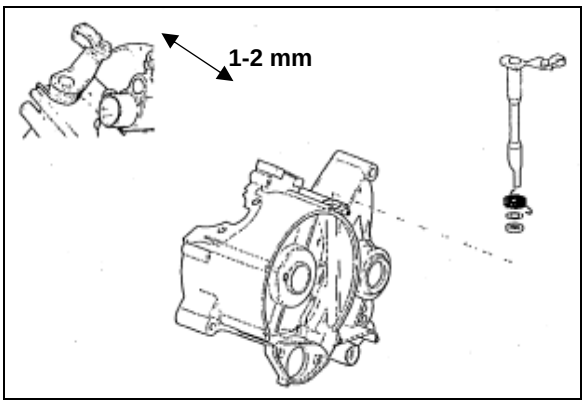
- drive pinion (1),
- guiding gear of the countershaft (2),
- key,
- distance sleeve,
- sealing ring.



REMOVING THE RELEASE LEVER

Remove the clutch release lever together with the return spring, the plain washer and the shaft seal. Note that a new shaft seal has to be used during reassembly.

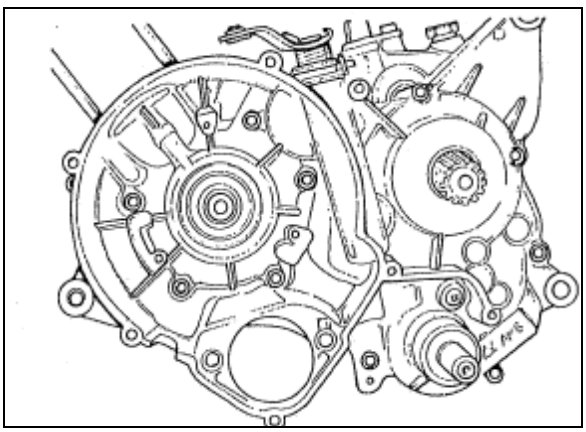
Free play of the release lever: 1-2 mm



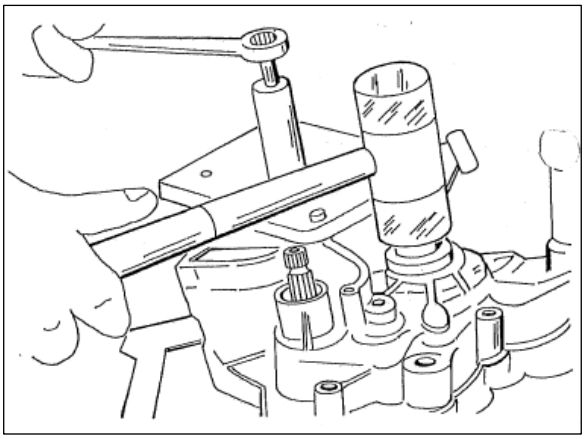
To avoid any frictional connection of the coupling pressure rods it is important to maintain a free play of 1-2mm. Otherwise the rods rotate with friction against each other which will cause severe damages to the engine.

DISASSEMBLY OF THE CRANKCASE

Loosen all 13 fastening screws of the crankcase halves.



Place a puller at the side of the ignition system and separate the left from the right crankcase with careful tappings by a rubber-headed mallet.



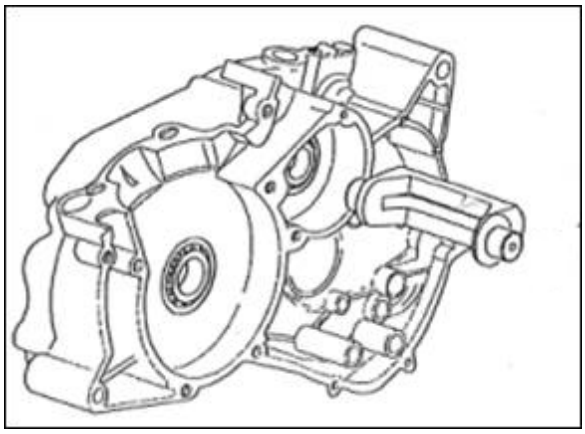
Alternately beat onto the drive axle and the shifter shaft in order to ensure that both halves of the crankcase get separated parallely.

Note the thickness and position of the scraper rings that are mounted on the respective shafts. Make sure that no plain washers remain on the housing parts.

Special tool:
Crankshaft puller CPI-D06-82015-25-00

COUNTERSHAFT REMOVAL

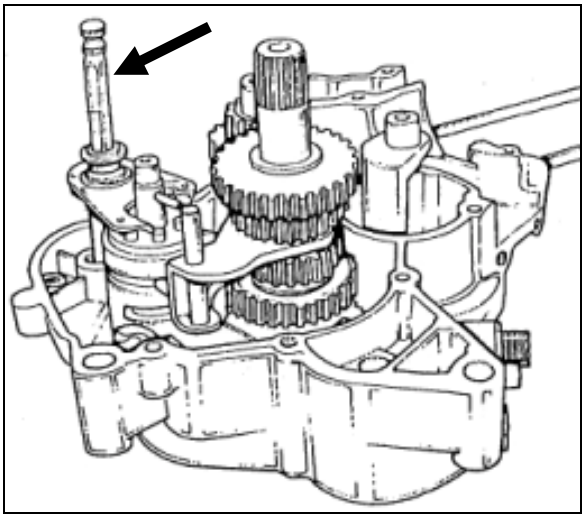
After separating the two crankcase halves, the countershaft shall be removed.



Heat up the bearing seat of the countershaft bearing to approx. 70°C.
Use a suitable puller for removing the bearing from the flywheel side.

SHIFTER SHAFT REMOVAL

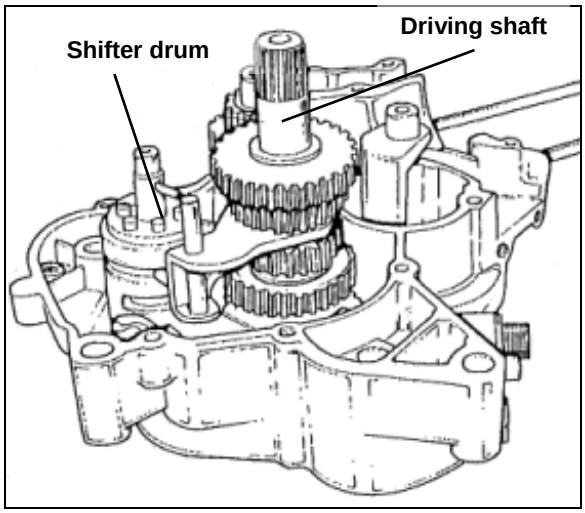
Remove the shifter shaft and the lower scraper ring.



DRIVEN SHAFT REMOVAL

Slightly lift the driving shaft and pull out the driven shaft as well as the shifter drum from the shifter fork and the lower scraper rings. Pay attention not to damage the threads.

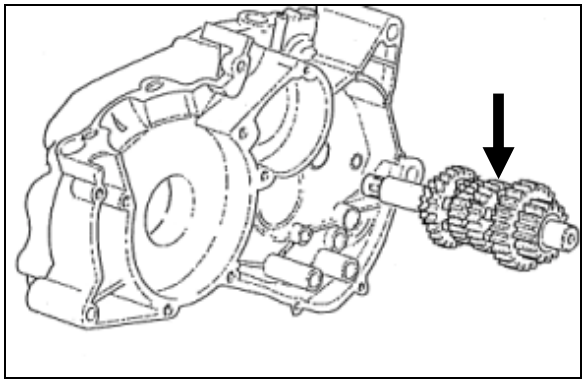
Remove the ball and the spring below the shift drum.



DRIVING SHAFT REMOVAL

Remove the driving shaft by careful tappings with a rubber mallet.

Pay attention not to damage the thread!

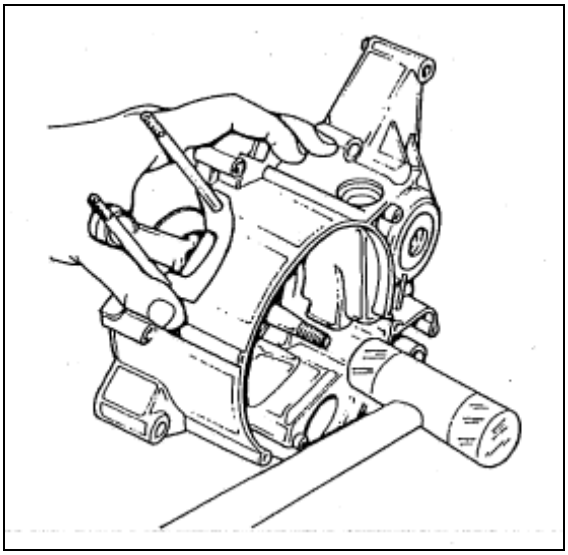


CRANKSHAFT REMOVAL

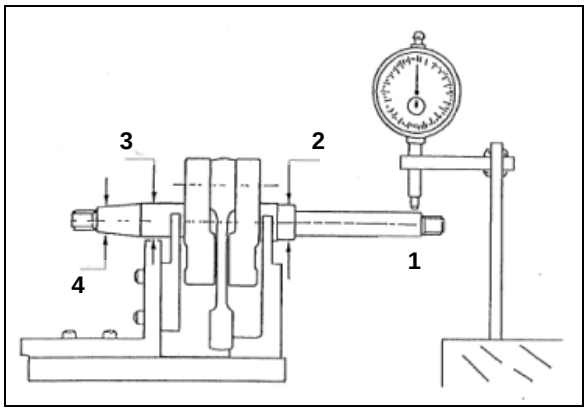
Remove the connecting rod system from the crankcase clutch side. For this purpose, use a rubber-headed mallet. Pay attention not to damage the threads.

The ball bearings shall only be removed, if they are to be renewed. In this case an appropriate driver with a corresponding diameter shall be used to drive them from the outer casing of the crankcase.

The housing shall be heated up to approx. 75°C prior to reinstalling the bearings.



PREPARATIONS



Clean the two crankcase halves and the bearings with a hardly flammable solvent and clean them with compressed air.

Note that the bearings must not rotate during the cleaning with compressed air. Otherwise they might get damaged.

Rotate the inner ring of the bearings with the finger. In case of an irregular rotation remove possible dirt that may have entered the bearing (wash the bearing and have it sufficiently dried). If the bearing still rotates irregularly, it shall be replaced.

CONNECTING ROD AND FLYWHEEL

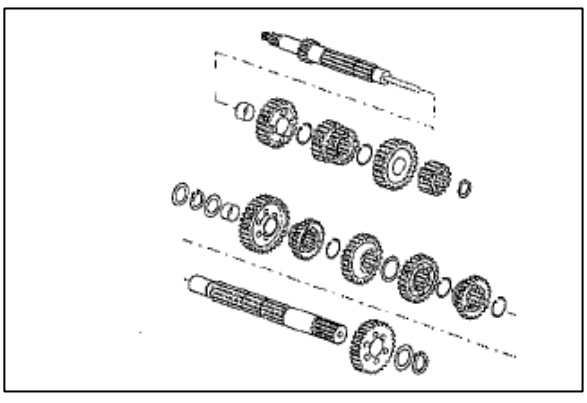
Clean the components.
Check the flywheel and the axle shafts for damage and wear. Check the connecting rod condition by turning the connecting rod pin. It must be replaced when the connecting rod does not rotate freely or shows an excessive play in spite of having all components adequately cleaned.

Do not replace the connecting rod if you do not have access to a hydraulic press, the required special tools, and the required technical knowledge respectively.

The connecting rod must not be bent and ist stroke must be at right angles to the axle shafts.

Place the axle shaft on a vee-block for measuring and check the condition of the connecting rod and the eccentricity of the two axle shafts.
Limit eccentricity: 0.04 mm

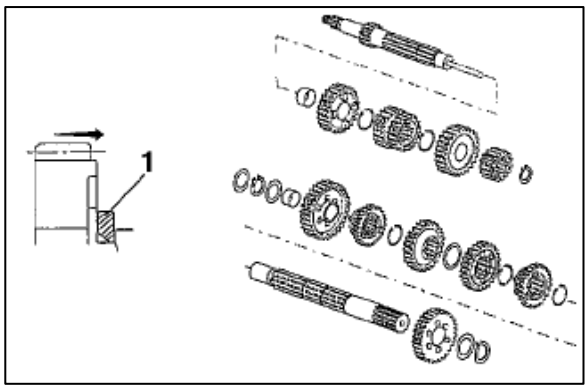
DISASSEMBLING DRIVEN AND DRIVEN SHAFT GEARS



Remove the circlips: Note the position of the different scraping shims and gears. Check the pin clutches for wear. They shall be replaced if they are excessively chipped or rounded.

The gears must slide smoothly and must not get stuck.

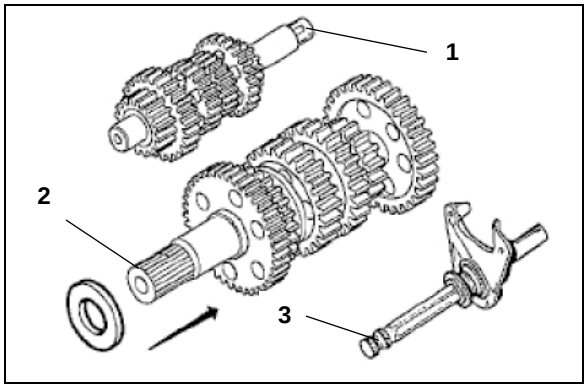
REASSEMBLING DRIVING AND DRIVEN SHAFT GEARS



All parts must be greased prior to reassembling.

Use new circlips (1). Note that their pointed edge must be oriented to the outside, i.e. on the opposite side to the maximum stress direction.

CHECKING THE END PLAY



The shafts to be checked have to be mounted individually. The correct attachment of the scraping shims must be observed. Both body halves have to be secured with at least 6 fastening screws.

Move the shaft axles by hand and measure the end play at the threaded part with a dial gauge.

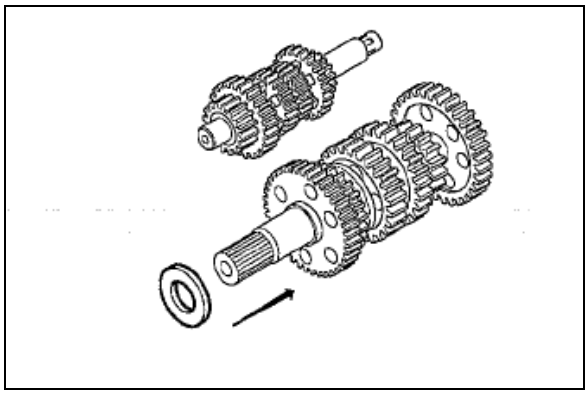
Driving shaft end play limit: 0.5 mm
Driven shaft end play limit: 0.5mm

Measure the end play at the threaded end (1) of the driving shaft and at the splined end (2) of the driven shaft and of the shifter shaft (3).

End play limit: 0,5 mm

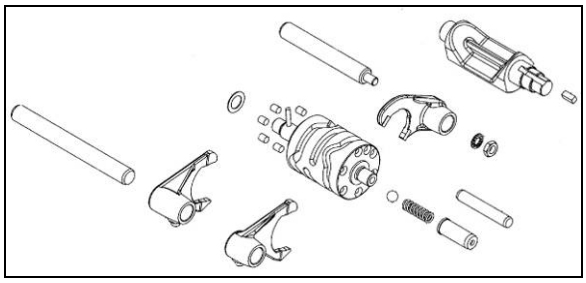
In case of deviations from the above defined limit values the excessive play can be compensated by the use of appropriate washers.

CHECKING THE GEAR SHAFT



Check the gear shaft for completeness and mount the scraping shims according to the previously provided markings. If they need to be replaced, the new ones must be mounted at the same position as the replaced ones.

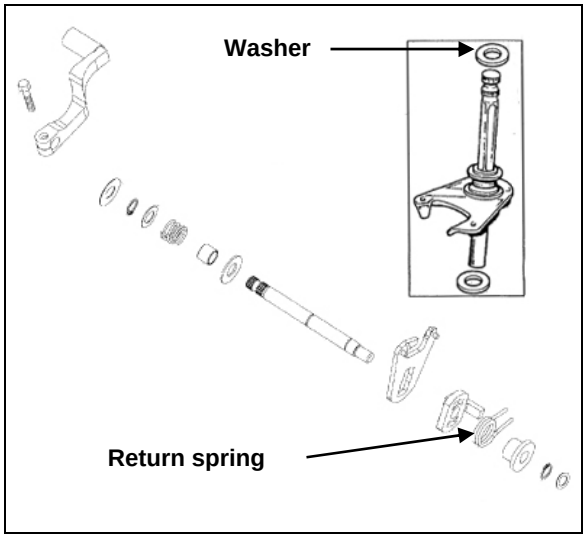
SHIFTER DRUM



Measure the distance of the shifter shaft thrust rings at the shifter drum and the crankcase. Compensate the distance with a washer if required.

End play without spring and ball: 0,1 – 0,2 mm

SHIFTER SHAFT



Measure the distance of the washers on the crankcase and the part and compensate the distance with a washer, if required.

Shifter shaft end play: 0.5 mm

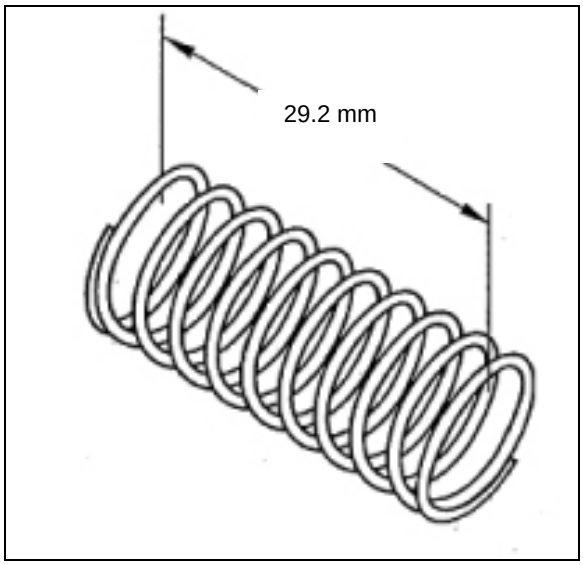
Check the gearshift return spring for proper functioning.

CLUTCH SPRING

Check the iron disks of the clutch for wear. Verify that the driving notches of the cork disks are not excessively worn, bent, or burnt.

Desired value of iron disk thickness: 3.0mm
Disk thickness limit value: 2.6 mm

Limit value friction disk warpage: 0.2 mm



The grooves in the clutch drum and the eyes in the clutch bell must not be dented too much.

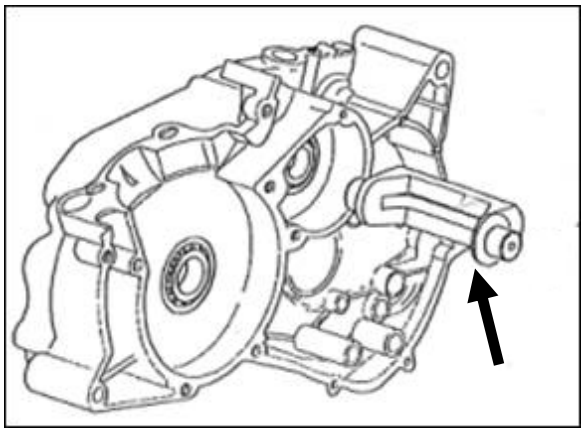
Check the free length of the clutch springs. The clutch springs shall be replaced if their free length is less than 28,5 mm.

Desired value of clutch spring length: 29.2 mm
Service limit: 28.5 mm

CHECK GEARSHAFT BEARINGS

The gearshaft bearings must run smoothly and noiseless and must not get stuck.
If a bearing is defective it must be replaced by means of a suitable driver.

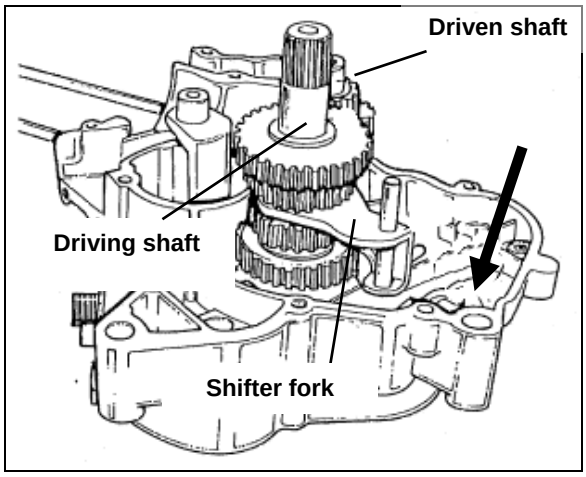
ASSEMBLY



MOUNTING THE COUNTERSHAFT

Install the countershaft into the right crankcase.

TRANSMISSION ASSEMBLY

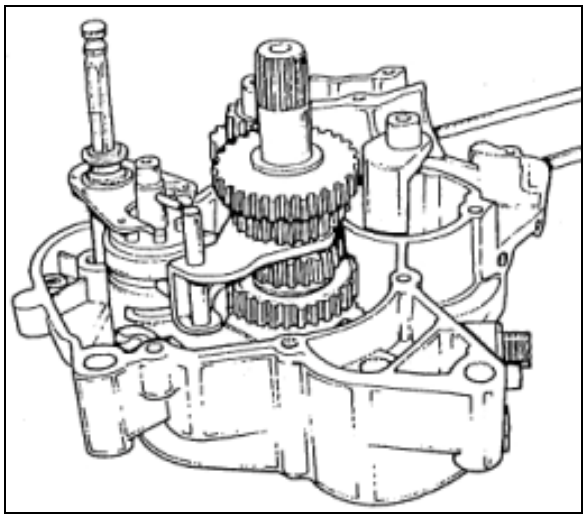


Grease the spring and the gear indicator ball and mount them into the right crankcase (s. arrow). Grease the thrust ring (0.6mm) and mount it on the primary shaft.

Join the driven and the driving shafts and fit the shifter fork to the driving shaft.

Place the assembly into the crankcase.
Mount the shifter drum. The fork has to be fitted to the second and third gear with its corresponding guide pins.

SHIFTER DRUM



Install the shifter drum. Fit the fork's guide pin in the slide way of the second and third gear.

GEARSHIFT UNIT

Mount the gearshift unit together with the lower washer (0.6 mm) and the return spring. The ends of the spring shall be put in the securing bridge.

Make sure that the spring presses the shifter shaft as well as the shifter drum up to stop and that the ends of the shifter fork touch the driving tabs of the shifter drum. If not, use a more appropriate washer and mount it below the shifter shaft. THe thickness of this washer shallbe compensated by replacing the upper one, so that the distance of the scraper rings will not be changed.

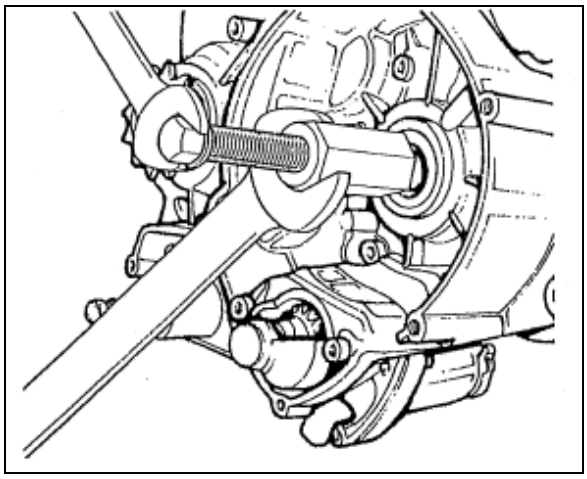
Set the shifter drum to the second gear and check the distances between the cams and the fork ends. If necessary, bend the spring ends slightly until this state is achieved.

CHECK TRANSMISSION

Put both housing parts together and fix them by tightening at least three fixing screws that are opposite to each other.

Check whether the gears can be engaged. When engaging the gears, they must not jam.

CONNECTING ROD SYSTEM



Mount the two crankshaft seals with a seal driver. This operation can also be carried out prior to reassembling the transmission. Thus, the gears will not be displaced by any impact during mounting of the oil seals.

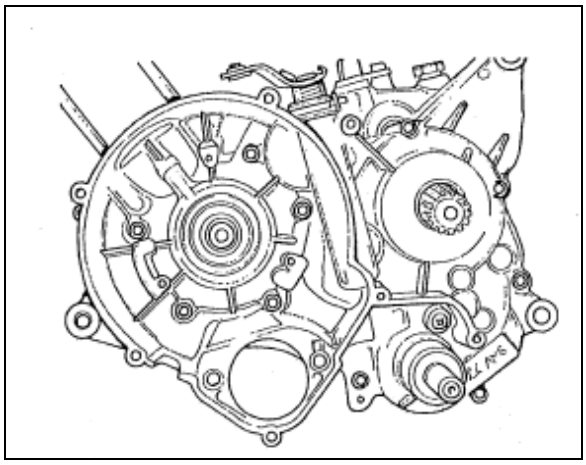
Mount the new O-ring in the seat for the driving shaft and mount the spacer.

Install the crankshaft in the left crankcase by means of a wrench. Hold the connecting rod in the top dead center position with a 13 mm spanner, tighten the nut with a 27 mm spanner until the connecting rod system sits close to the bearing.

Warm the crankcase halves to 90 - 100 °C to make this installation easier.

Lubricate the connecting rod shaft to protect it from scratches during installation.

CRANKCASE ASSEMBLY



Make sure that the scraper rings are mounted. Apply liquid gasket to the mating surfaces of the housing parts.

Grease the shafts and join both crankcase halves with soft tappings by a rubber-headed mallet.

Mount the fixing bolts and tighten them crosswise.
Tightening torque: 10 – 12 Nm

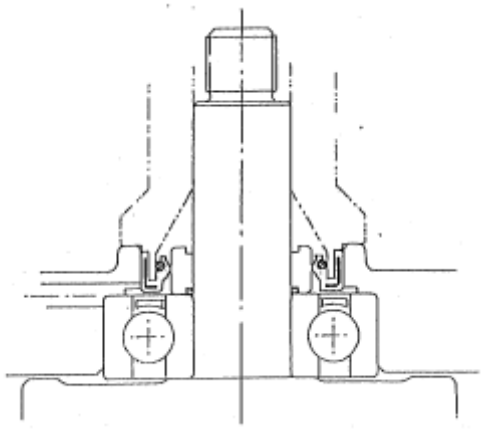
Mount new oil seals.

Mount the 13 screws and screw them in. Tighten the center screws first.

Make sure that all shafts can be rotated freely. Adjust it, if necessary, by slightly tapping on the axles.

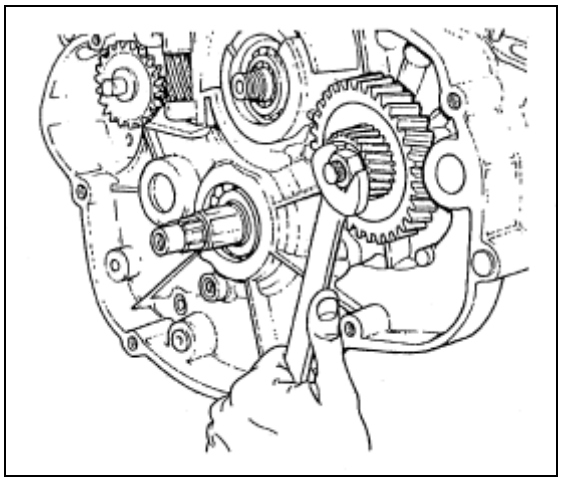
The axles must not show an excessive play. If required, separate the housing parts and replace the upper washer by a more suitable one.

FIITTING OIL SEAL ON PRIMARY SHAFT AND ON SHIFTER SHAFT



Check the oil seal seats for notchings and burr formation, as they could hamper the seal tightness. Provide the seats with oil and mount the seals with a suitable driver.

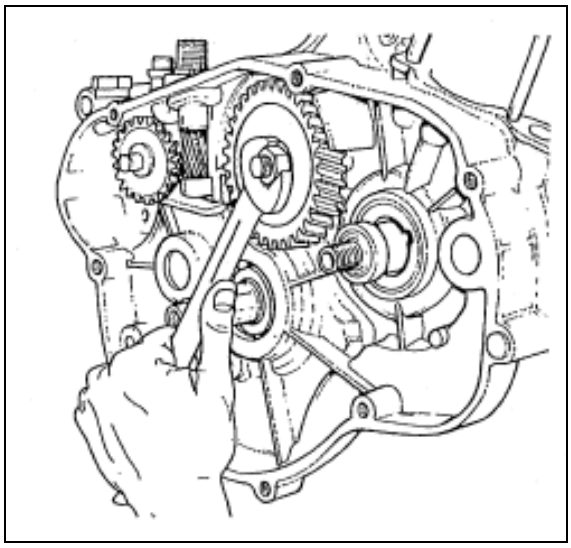
PINION AND GEAR



Check the pinion and the gear for excessive wear.

If one of the gears is worn too much, then both gears shall be replaced in order to ensure a better performance and noiseless operation.

COUNTERSHAFT GEAR



Mount the parts according to the following order on the crankshaft:

- oil seal,
- O-ring,
- spacer,
- key,
- countershaft drive gear,
- main drive gear
- nut.

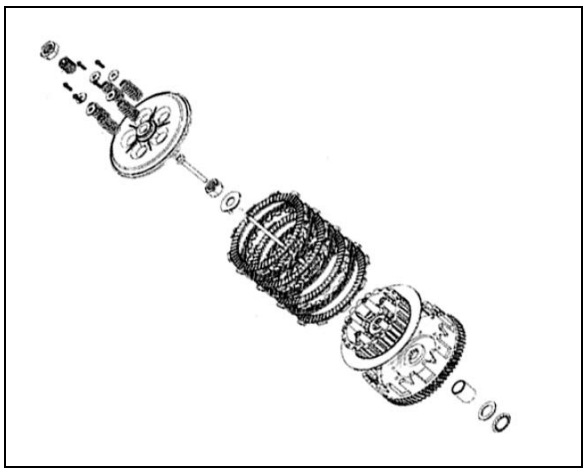
Tighten the nut with the magneto flywheel wrench.

Mount the key and the balance gear to the countershaft. The two reference marks on the gears must be aligned correctly.

Appy Loctite© thread locking compound and mount the drive gear.

Pinion nut tightening torque: 67 – 75 Nm
Gear nut tightening torque: 45 – 50 Nm

CLUTCH ASSEMBLY



The clutch shall be assembled in reverse order of disassembly. A new circlip for the clutch nut has to be used when installing the clutch.

Tighten the securing nut of the clutch drum and bend the petal of the circlip. Mount the coupling rod, the ball and the pressure plate.

Install the clutch drum and the disks according to their previously noticed order
(s. figure).

When assembling the iron disks, their notches, which are indicated by arrows, must be staggered by 120°. The notch on the first disk must face up so that the clutch can be properly balanced and operate without unwanted vibrations.

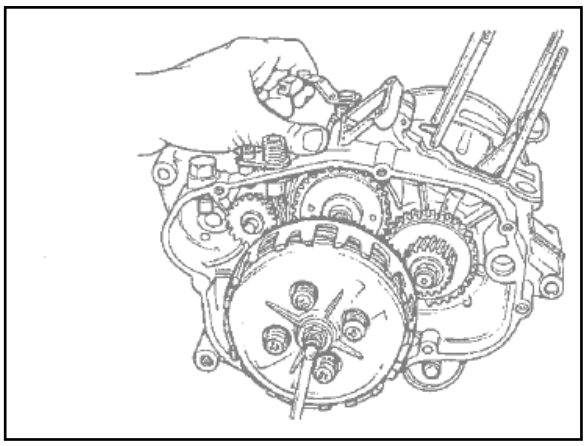
Install the clutch plate while observing the reference marks, which have to be aligned to each other. Fit the springs and the fixing screws and tighten them as per defined torque.
Torque: 55- 60 Nm
Torque: 3 - 5 Nm

CLUTCH POSITION

The clutch is properly positioned when the lever is parallel with the cover rest surface.

This position can achieved via the adjuster that is located on the end disc plus the use of a suitable screwdriver.

Torque: 26 - 28 Nm.



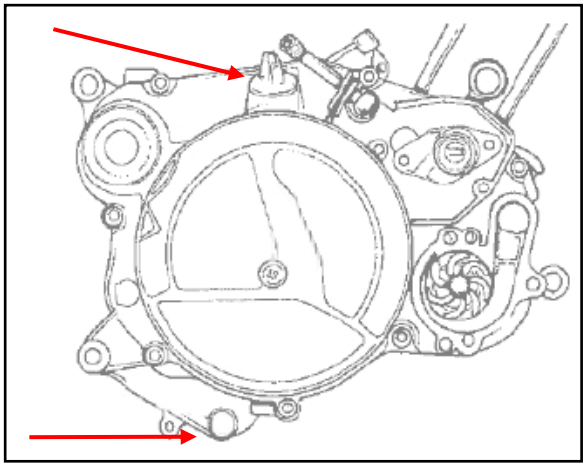
MOUNTING OF CLUTCH COVER PARTS

Mount the water pump oil seal with the aid of an oil seal driver. Grease the seat of the oil seal prior to installing.

Mount the impeller of the water pump, the gears of the pump and the washers.

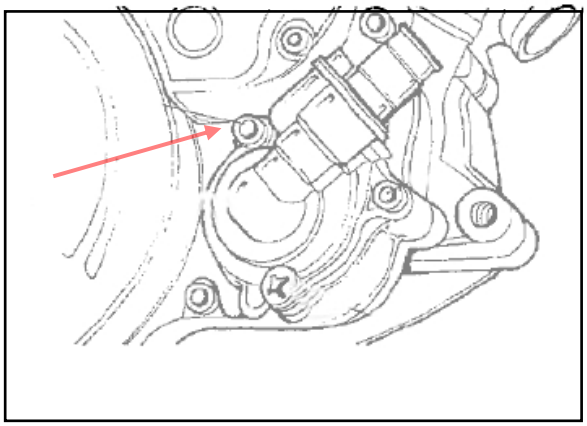
Install new circlips.

Mount a new gasket to the crankcase and fix the clutch cover with the corresponding screws.



Install the drain screw together with a new seal. Refill the specified amount of engine oil.

Engine oil filling amount: 0,75 l
Clutch cover fixing screw torque: 10-12 Nm
Drain screw tightening torque: 17-18 Nm

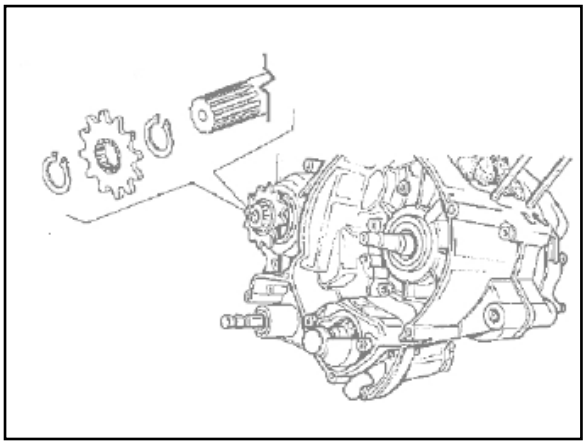


Pay attention not to damage the gears of the water pump and of the gears of the two-stroke oil pump.

Mount the water pump cover together with a new seal. Mount the coolant drain screw together with a new seal.

Torque of water pump cover screws: 4-6 Nm
Drain screw torque: 4-6 Nm.

Mount the gear and the circlips.



If a new gear is to be replaced, then the chain and the toothed ring shall be exchanged as well.

Adjust the free play of the clutch lever to 10-15 mm.

NOTES

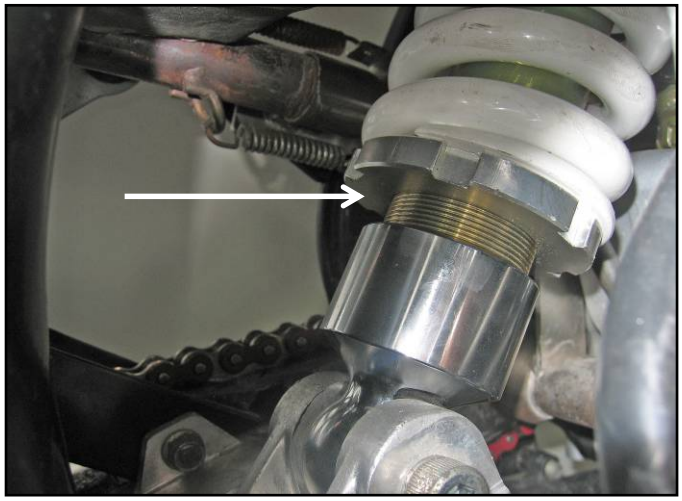
FRAME - CHASSIS

REAR SUSPENSION STRUT	FC-2
DRIVE CHAIN	FC-2
ENGINE AIR CLEANER	FC-2
FOOT BRAKE LEVER	FC-3

REAR SUSPENSION STRUT

Adjust the spring tension of the rear suspension strut with the aid of the adjusting nut.

For this purpose a universal tool shall be used.



DRIVE CHAIN

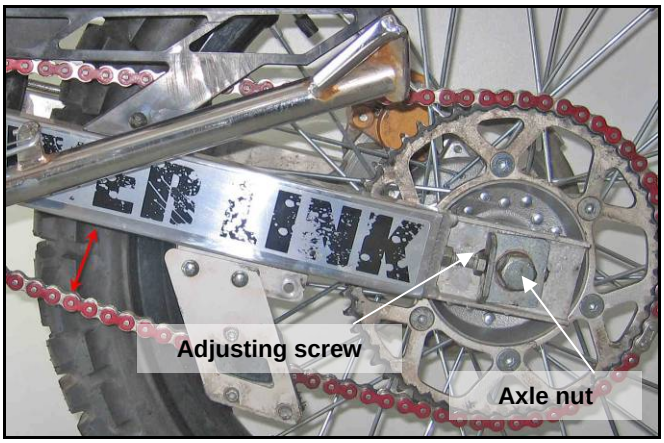
The tension of the drive chain shall be adjusted according to the following procedure:

Loosen the axle nut of the rear wheel.

Loosen the lock nut of the chain tensioner.

Adjust the slack of the chain by turning the adjusting screw.

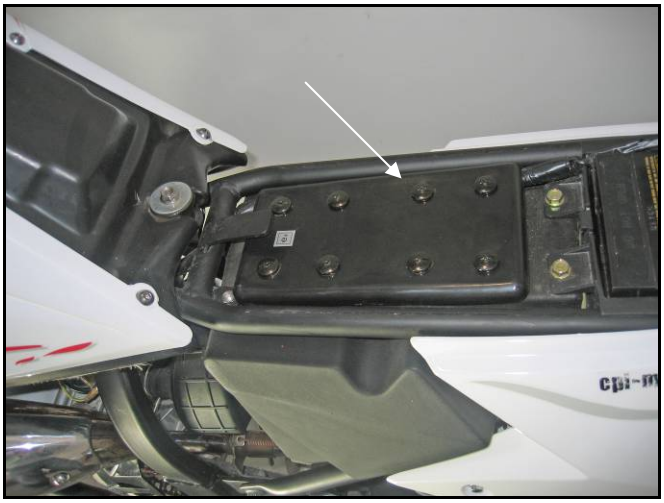
Standard value: 15 - 26 mm



ENGINE AIR CLEANER

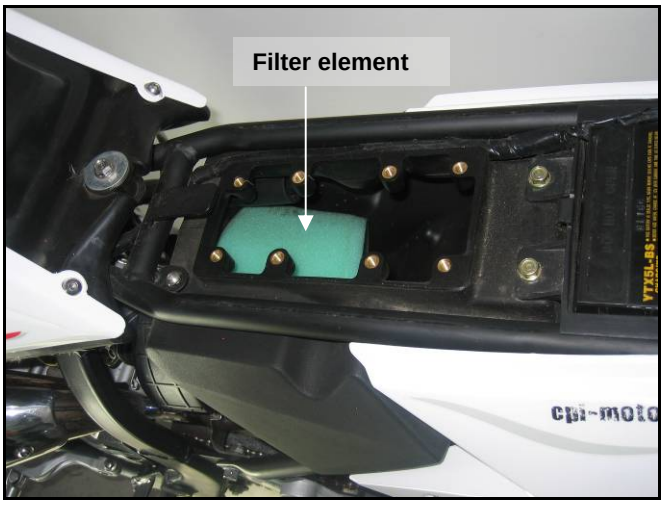
Remove the seat.

Loosen the screws of the air cleaner cover and remove the cover.



Take out the filter element and check it for damages.

Clean the filter element and replace it if required.



FOOT BRAKE LEVER

Press down the foot brake lever.

Loosen the lock nut of the adjusting screw.

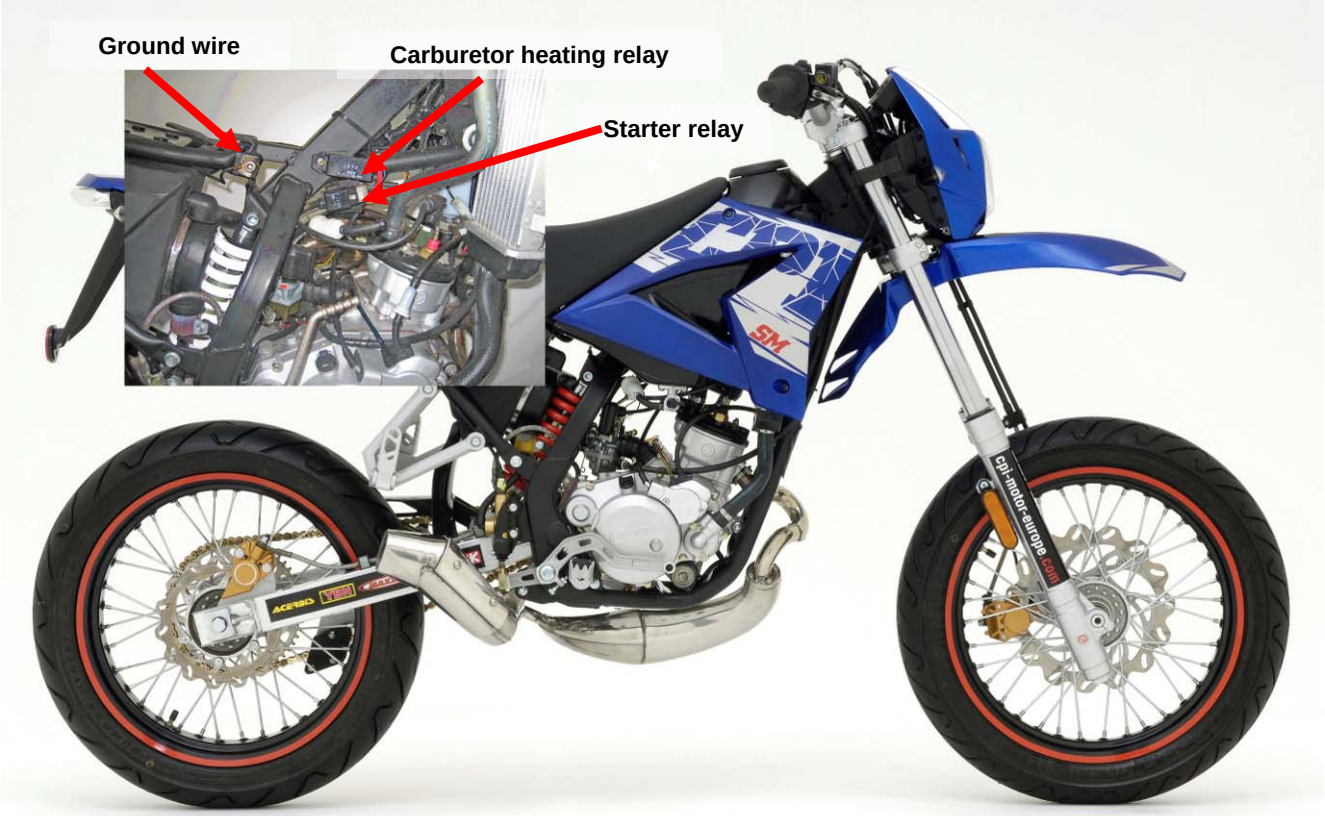
Turn the screw until it meets the stop and tighten the lock nut.

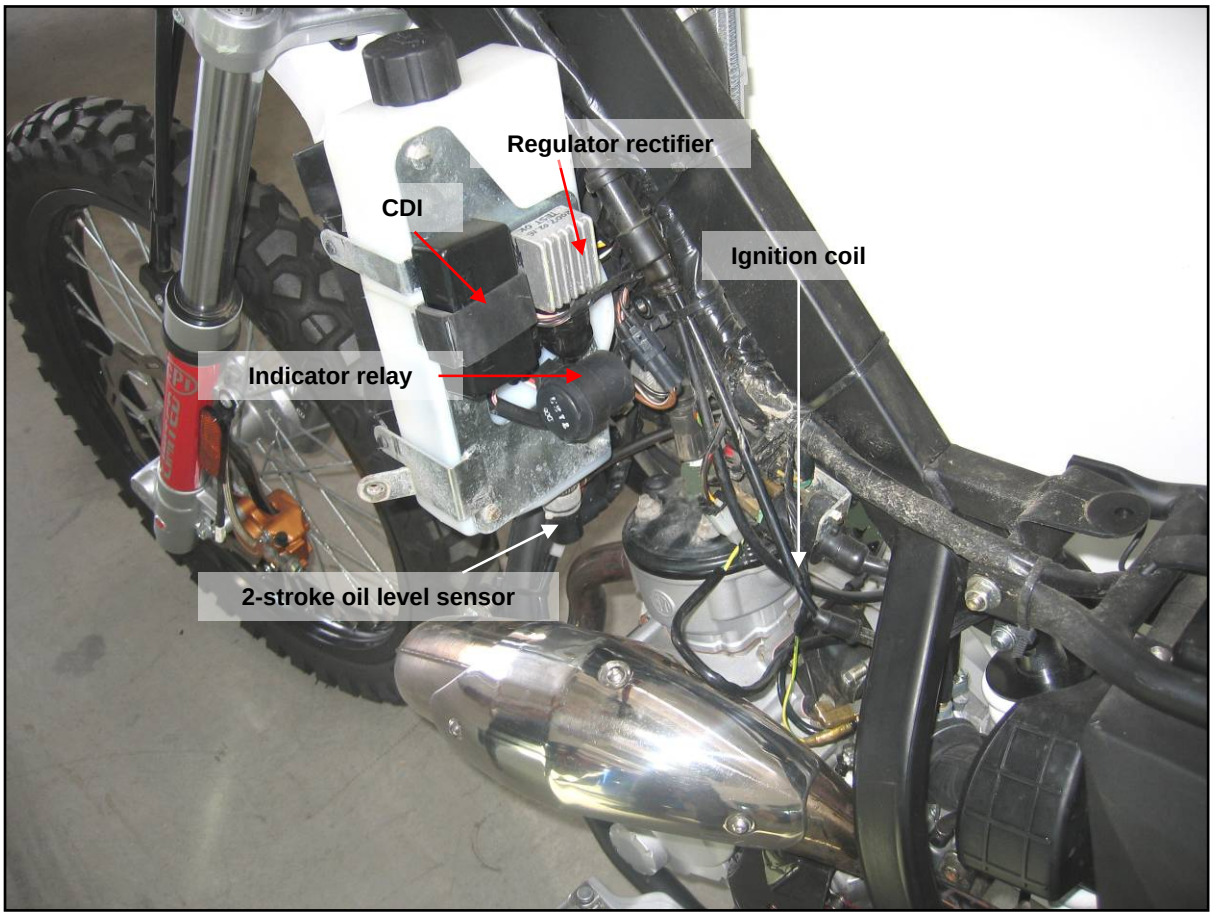
NOTES

ELECTRICAL SYSTEM

LOCATION OF ELECTRIC COMPONENTS	ES-2
CHARGING SYSTEM	ES-3
SPEEDOMETER SETTING	ES-6
HORN	ES-6
BRAKE LIGHT SWITCH	ES-7
OIL LEVEL SENSOR	ES-7
FLYWHEEL MAGNETO	ES-8
STARTER MOTOR	ES-11
WIRING DIAGRAM	ES-12

LOCATION OF ELECTRIC COMPONENTS

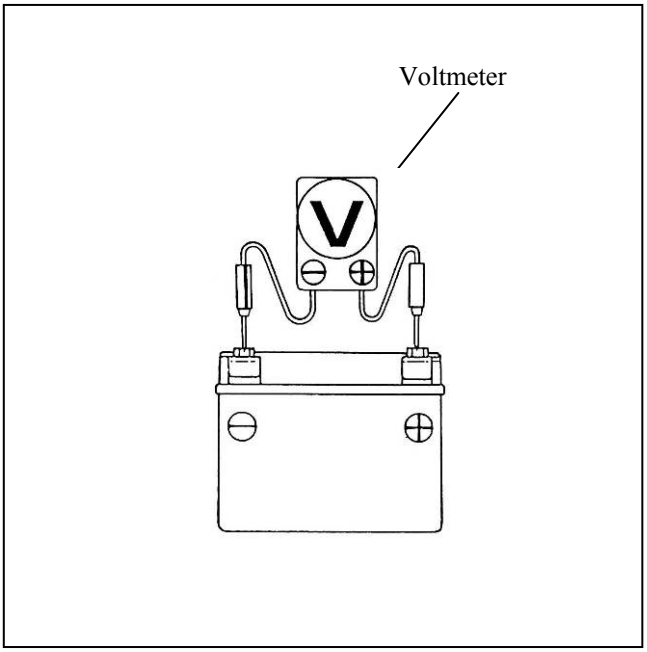




Charging System

Checking the charging voltage

The charging voltage directly is related to the charge state of the battery. All measurings have therefore to be carried out when the battery is fully charged. Since the high current consumption of the starter motor (E starter) can damage the measuring instrument during the engine start, the instrument has only then to be connected when the engine is already running.

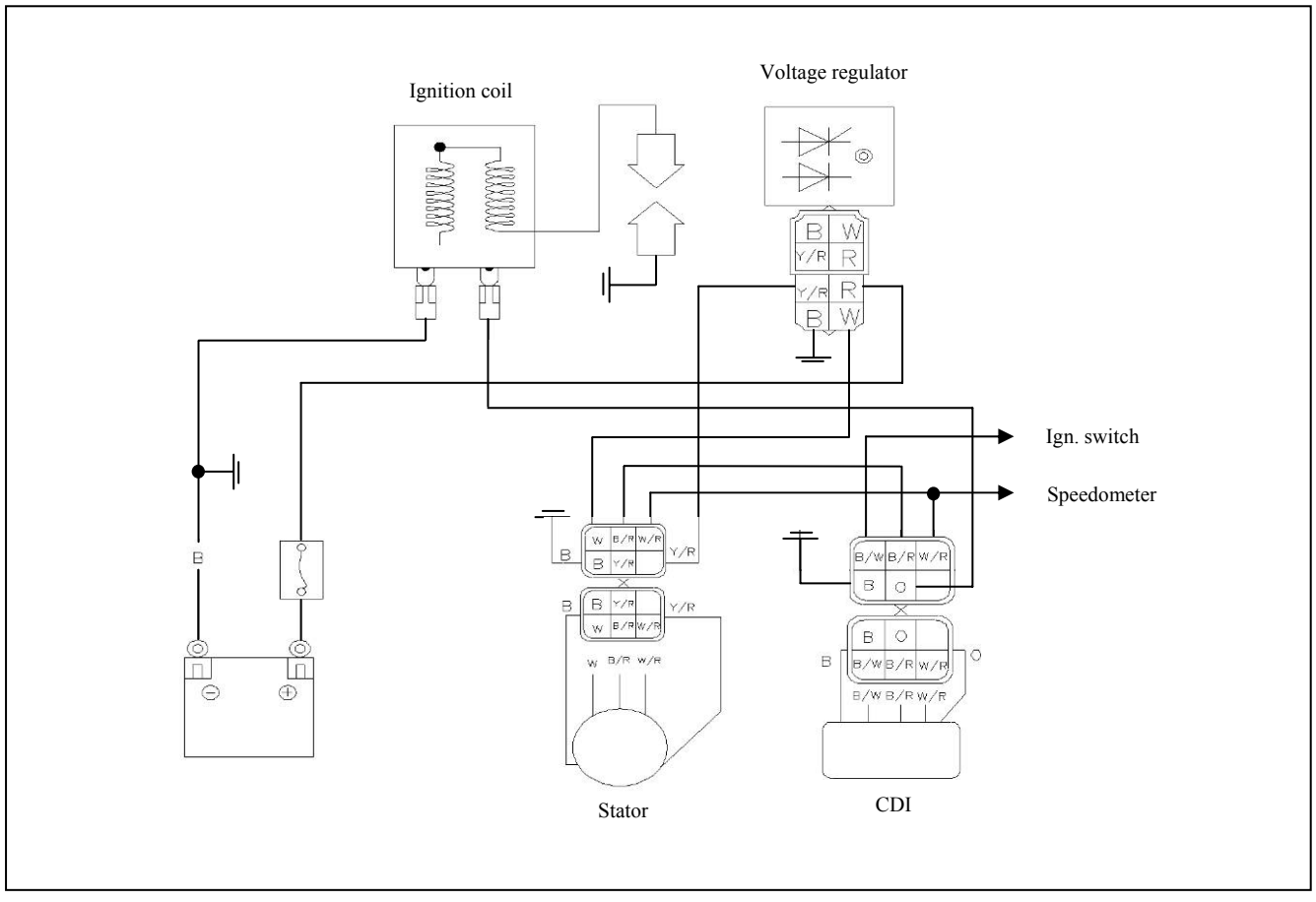


Desired value: 13,0–14,5 V at 6000 min^{-1}

Generator (Stator)

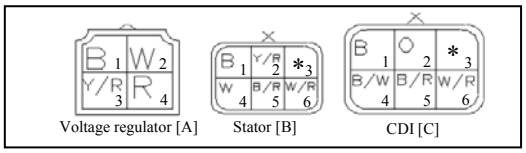
The 6-pole plug-in connection of the generator is located under the fuel tank. All measurings of the wiring harness have always to be taken at the plug-in connection that is remotest from the component (see chapter GI).

System circuit diagram



Generator (Stator)

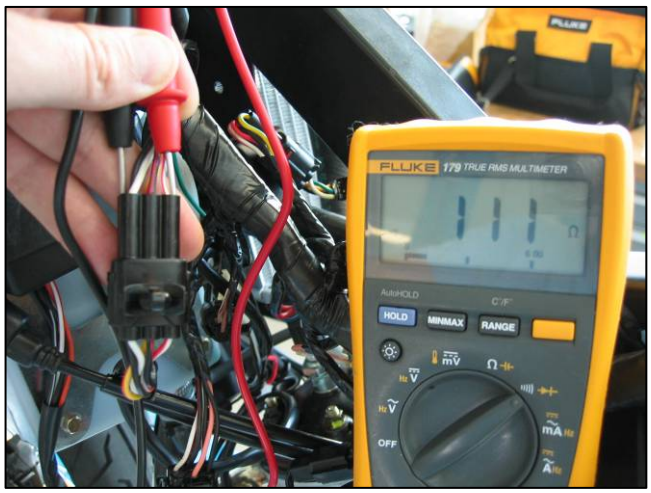
- Put the test probes to the plug-in connection *[C]* and measure the values according to the table.
- Repeat the connection *[B]* measurement in case of deviations from the desired value.
- If deviations are no lonnger measurable check the wiring.



Note

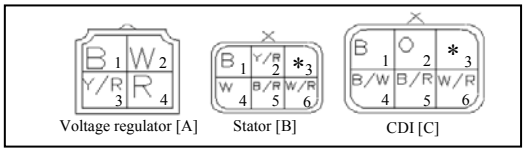
Always connect the test probes at the back of the plug-connections!

Measuring position	Unit	Value
C1 -> GND	Ω	0
C5 -> C1	Ω	700-900
C6 -> C1	Ω	90-135



Generator (Stator)

- Attach the test probes to connection *[A]* and measure the values as per table.
- Repeat the connection *[B]* measurement in case of deviations from the desired value.
- If deviations are no lonnger measurable check the wiring.



Note

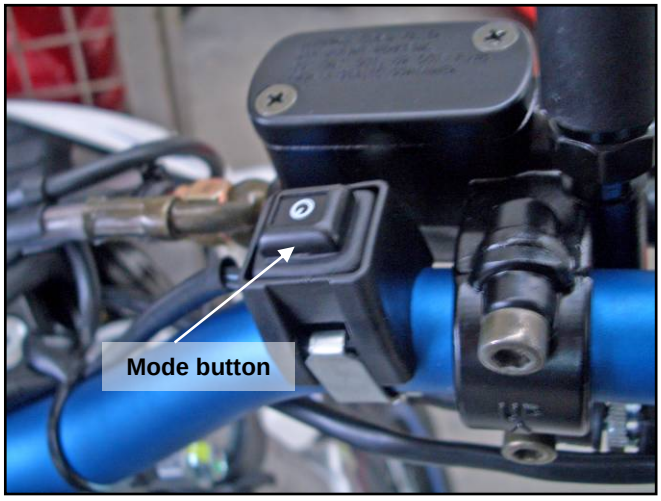
Always connect the test probes at the back of the plug-connections!

Measuring position	Unit	Value
A1 -> GND	Ω	0
A1 -> A2	Ω	0,4-1,0
A1 -> A3	Ω	0,4-1,0
A2 -> A3	Ω	0

SPEEDOMETER SETTING

Changing the wheel size

Press down the mode button until the settings for the wheel size are displayed. The wheel size can be changed by short tappings on the button. Save the setting by pressing down the mode button for approx. 3 secs. After that, the two measurement units for km/h and mph are displayed, and the desired one can be selected. Select the desired unit with a short tap on the mode button. The measurement unit flashes and will be set when the mode button is pressed down for three seconds. When the wheel size is changed, TD, LAP und AVE values are automatically set back to zero.



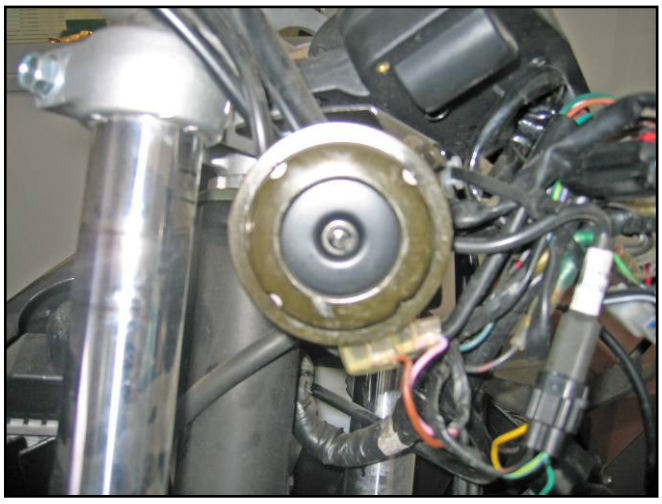
If the wheel size menu is selected and the wheel size is not changed for about 20 secs, then the display automatically switches back to the start menu. The factory adjustment of the wheel size is 1840.

HORN

Disconnect the plug connector from the horn. Connect a voltmeter to the horn plug connection and check whether voltage is applied. For this purpose turn the ignition key to the “ON“ position and press the horn button.

If no voltage is applied, check the horn button wires.

If a voltage can be measured, replace the horn.



BRAKE LIGHT SWITCH

FRONT

Disconnect the cables from the switch and check the continuity between both terminals while applying the front brake.

A: brake applied:	0 Ω
B: brake let off:	∞

REAR

Disconnect the cables from the switch and check the continuity between both terminals while applying the rear brake.

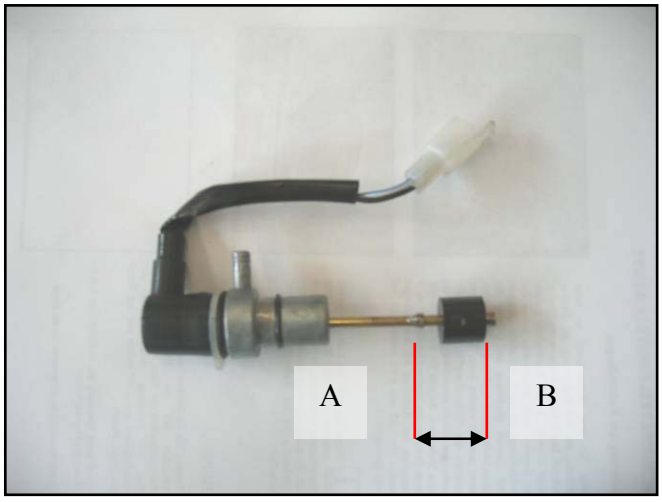
A: brake applied:	0 Ω
B: brake let off:	∞

OIL LEVEL SENSOR

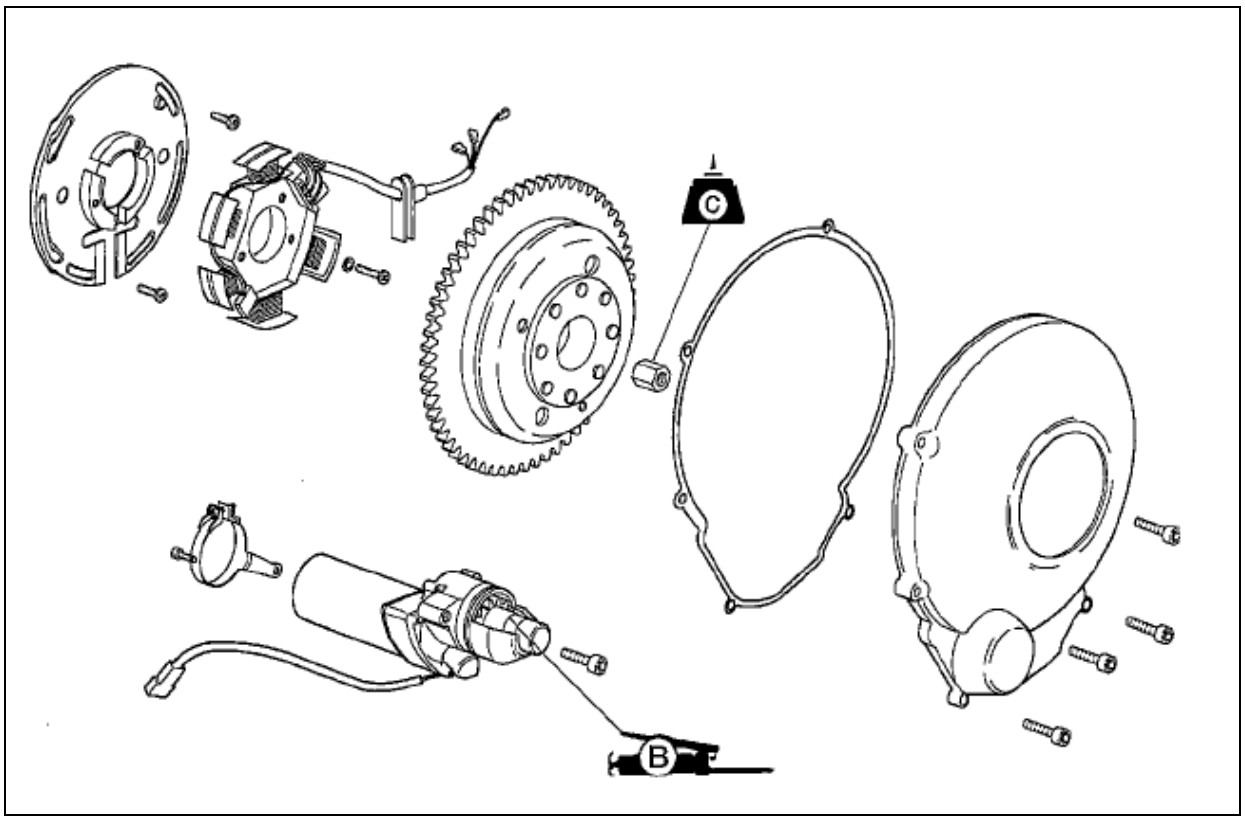
Disconnect the plug connection and remove the oil level float.

Measure the current flow between the terminals of the cable.

A:	0 Ω
B:	∞



FLYWHEEL MAGNETO

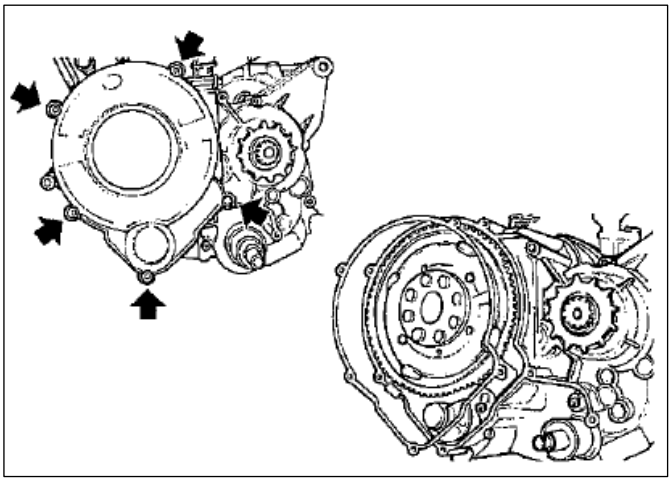


FLYWHEEL COVER REMOVAL

Loosen the fastening screws and remove the flywheel cover.

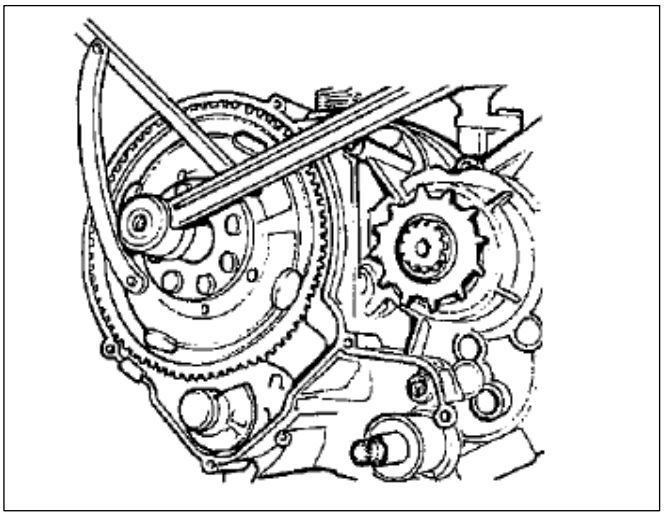
Check the cover gasket for aging or damage.

Check the cable grommets for fissures and aging.



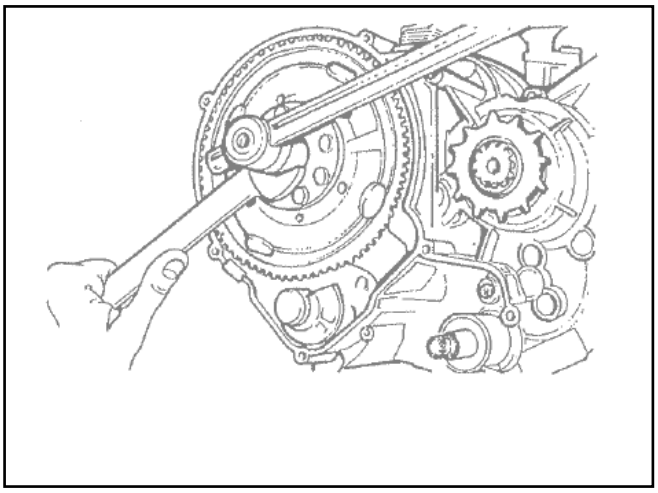
FLYWHEEL REMOVAL

Block the flywheel magneto rotor and loosen the locknut with a 15mm – spanner.



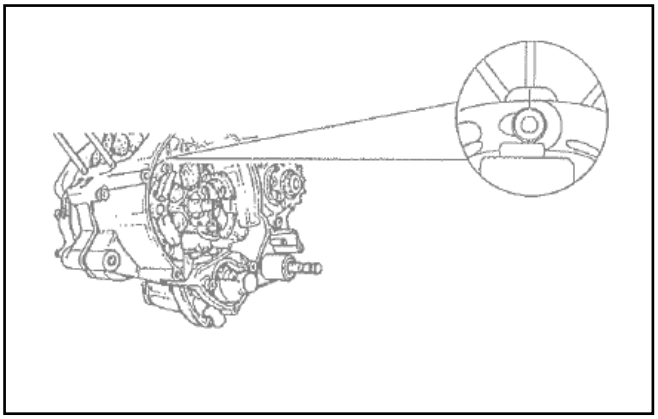
Remove the rotor with a properly dimensioned puller. Screw the puller in the threaded seat of the rotor.

Keep the spanner in place and loosen the nut with a 17 mm spanner.

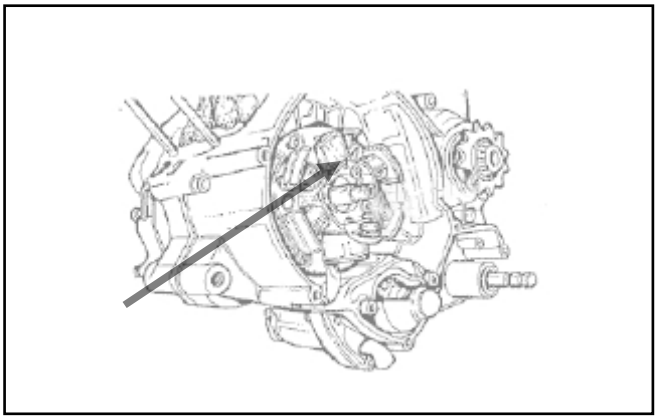


STATOR REMOVAL

Prior to removing the stator, the seats on the crankcase and on the stator plate have to be provided with two reference marks in order to ensure that the stator can be properly reinstalled.



Loosen the fastening screws and remove the stator plate. After that remove the key.



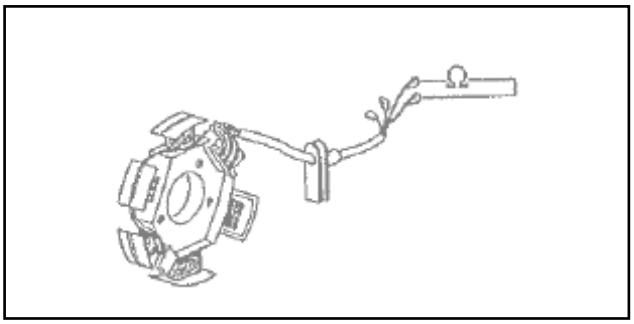
FLYWHEEL INSPECTION

Check the mechanical state of all flywheel components. If the ring gear, the key seat, or the keyway on the crankshaft are worn, the part in question must be replaced.

Measure the resistance with a digital multimeter:

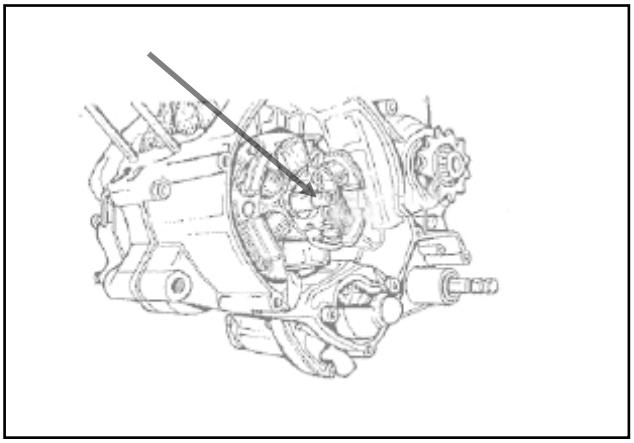
Check	*Cable color*	*Value*
Pick-up	R-B	125 Ω ± 15 Ω
Loading coil	V-B	730 Ω ± 35 Ω
Generator coil	G-B	0 Ω

B = White
G = Yellow
R = Red
V = Green



FLYWHEEL INSTALLATION

Mount the anchoring plate of the stator. Make sure that the previously provided reference marks are correctly aligned.
Mount the flywheel magneto key, pull the stator cables through the cable rubbers of the crankcase and mount the stator. Secure it with the fastening screws (arrow).
If a new anchoring plate or block is installed, the ignition timing has to be checked.

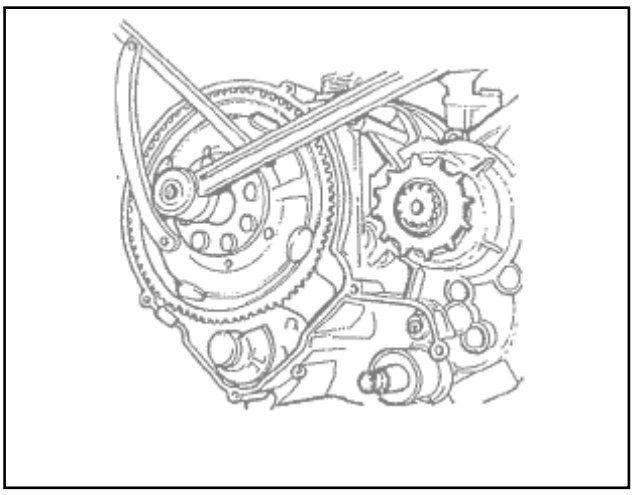


Tightening torques:
Stator plate fastening screws: 3 - 4 Nm
Stator fastening screws: 3 - 4 Nm

Install and tighten the rotor.

Torque: 43 – 45 Nm

Apply Loctite© thread locking compound prior to mounting the nut!

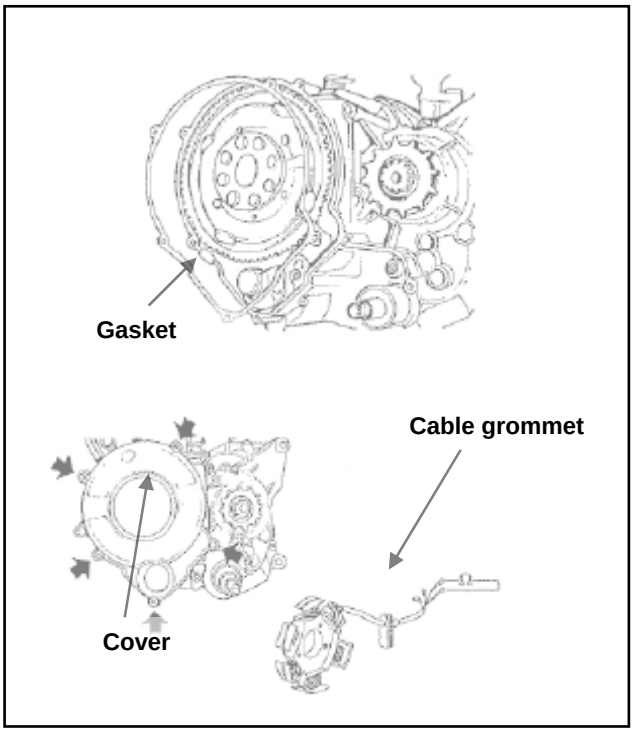


FLYWHEEL COVER MOUNTING

Mount the gasket and the cover of the flywheel. Verify the seat of the grommets.

Tighten the screws.

Torque: 1 2 Nm



STARTER MOTOR

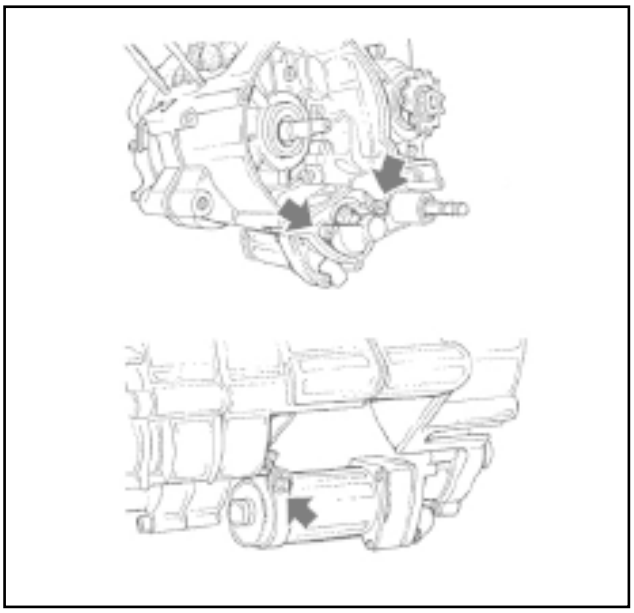
REMOVAL

Remove the two screws below the left crankcase and the fixing bolt at the rear part of the starter motor.

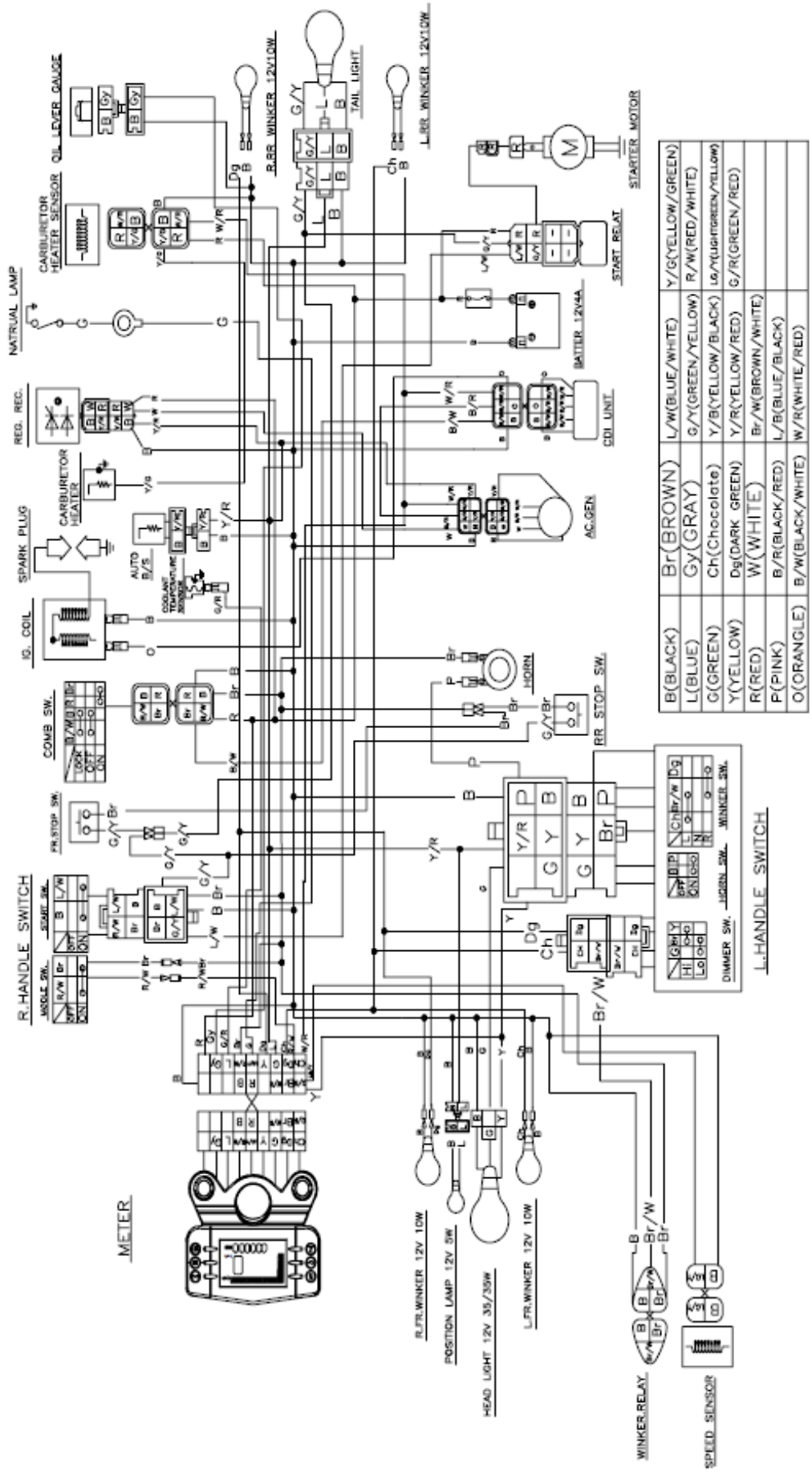
INSTALLATION

Make sure that the O-ring is seated in the provided groove. Apply a thin film of special oil seal grease and secure the starter motor with the fastening screws.

Torque: 5 Nm



WIRING DIAGRAM



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